

## FEATURES

- \* FS (Frequency Synthesizer) Tuning System
- \* CATV Ready
- \* Monitor Look Design
- \* High Focus Minineck CRT

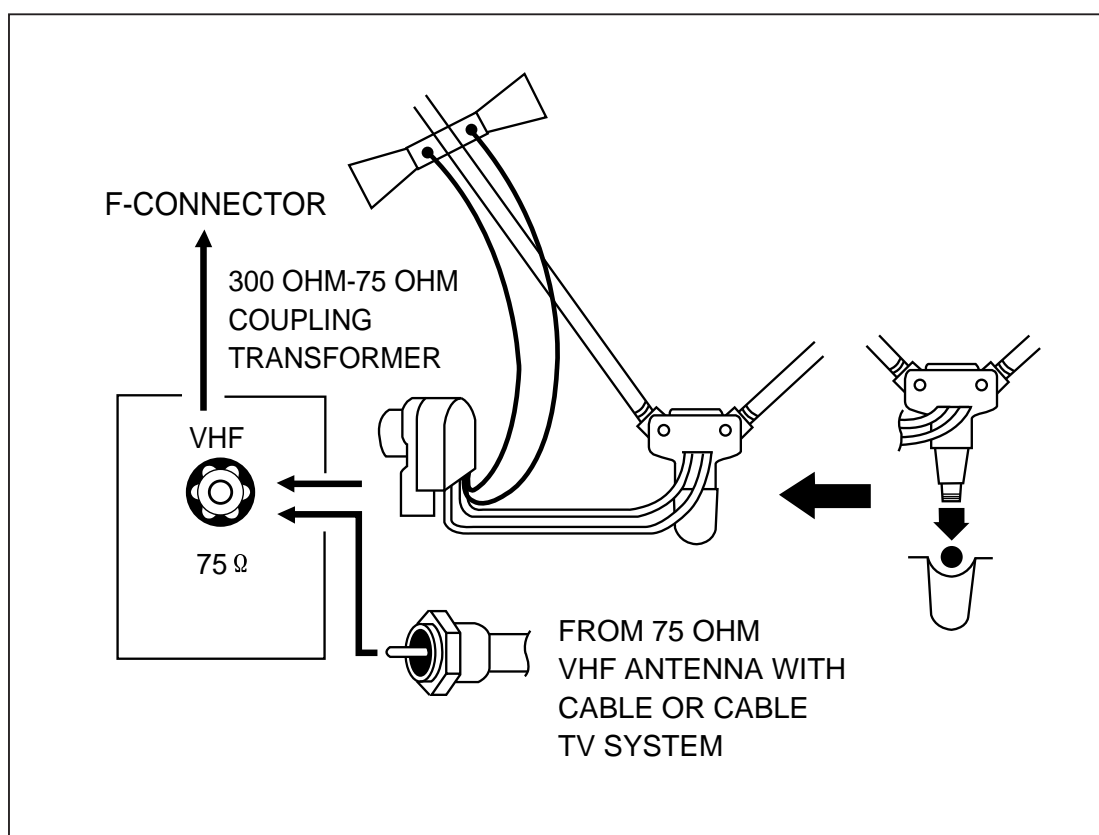
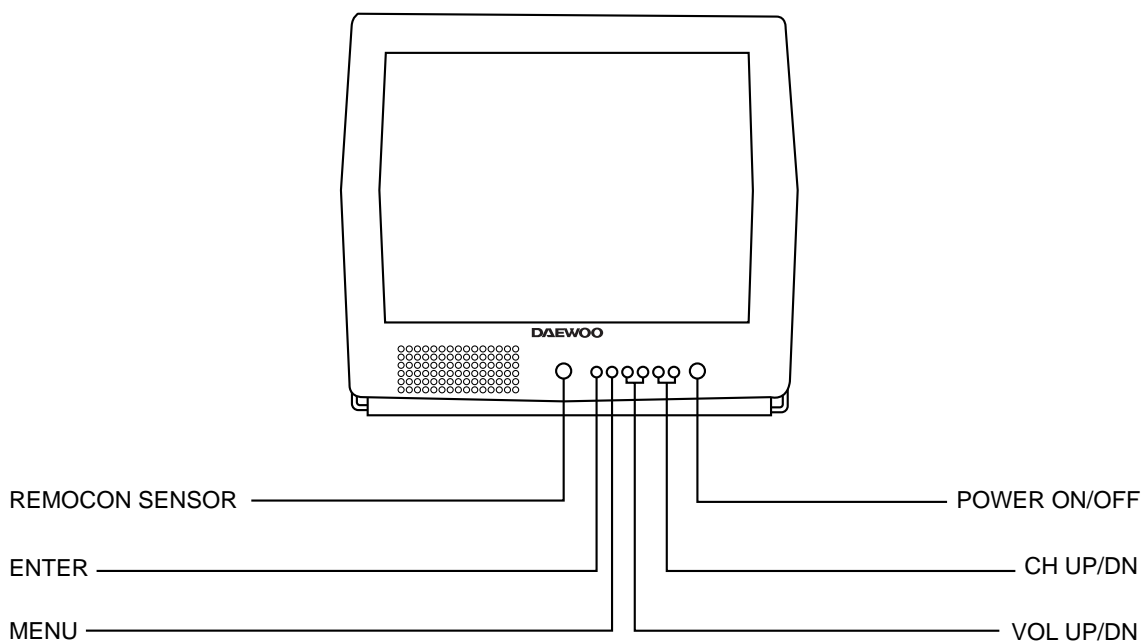
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## SPECIFICATIONS

Power Input .....	AC 120V,60Hz
Power Consumption .....	75W/85W
Antenna Input Impedance .....	75 ohm for VHF/UHF
Receives Channels	
TV : VHF .....	2~13
CATV .....	1~125
TV : UHF .....	14~69
Sound Output .....	1.3W Max
Picture Tube .....	A34JLL40X01/A48JLL40X01
Weight .....	11.8Kg/19.9Kg
Dimensions(BOX) .....	422 x 392 x 430WHD/562 x 493 x 518WHD
Cabinet .....	Plastic Portable

## ■ CONTROL VIEW



## IMPORTANT SERVICE NOTES

### 1. X-RAY RADIATION PRECAUTION

- 1) Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards, the high voltage must not be above the specified limit. The nominal value of the high voltage of this receiver is 24.4kv(28.6kv) at zero beam current \* (minimum brightness) under a 120V AC power source. The high voltage must not, under any circumstances, exceed 25kv (29kv). Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure on page 7 of this manual. It is recommended as a parts of the service record. It is important to use an accurate and reliable high voltage meter.
- 2) This receiver is equipped with X-RADIATION PROTECTION circuit which prevents the receiver from producing an excessively high voltage even if the B+ voltage increases abnormally. Each time the receiver is serviced, X-RADIATION PROTECTION circuit must be checked to determine that the circuit is properly functioning, following the X-RADIATION PROTECTION CIRCUIT CHECK procedure on page 7 of this manual.
- 3) The only source of X-RAY RADIATION in this TV receiver is the picture tube. For continued X-RAY RADIATION protection, the replacement tube must be exactly the same type tube as specified in the parts list.
- 4) Some parts in this receiver have special safety-related characteristics for X-RAY RADIATION protection. For continued safety, parts replacement should be undertaken only after referring to the PRODUCT SAFETY NOTICE below.

### 2. SAFETY PRECAUTION

**WARNING:** Service should not be attempted by anyone unfamiliar with the necessary precautions on this receiver. The following are the necessary precautions to be observed before servicing.

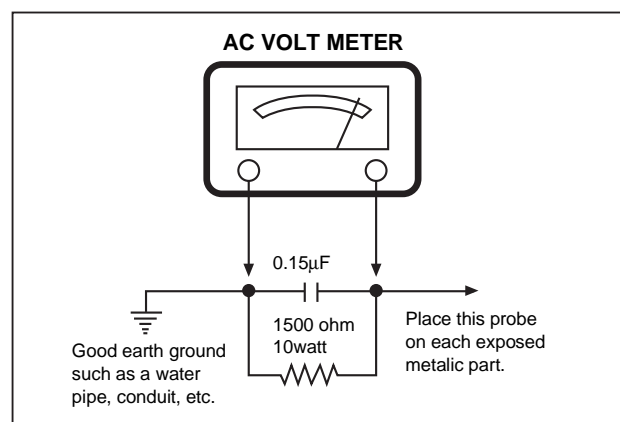
- 1) Since the chassis of this receiver has hazardous potential to ground whenever the receiver is plugged in (floating chassis), an isolation transformer must be used during servicing to avoid shock hazard.
- 2) Always discharge the picture tube anode to the CRT conductive coating before handling the picture tube. The picture tube is highly evacuated and if broken, glass fragments will be violently expelled. Use shatterproof goggles and keep picture tube away from the body while handling.
- 3) When placing a chassis in the cabinet, always be certain that all the protective devices are put back in place, such as; non-metallic control knobs, insulating covers, shields, isolation resistor-capacitor network, etc.
- 4) Before returning the set to the customer, always perform an AC leakage current check to the exposed metallic parts of the cabinet, such as antennas, terminals, screwheads, metal overlays, control shafts etc. to be sure the set is safe to operate without danger of electrical shock.

#### \* Minimum brightness

Plug the AC line cord directly into a 120V AC outlet (do not use a line isolation transformer during this check).

Use an AC voltmeter having 5000 ohms per volt or more sensitivity in the following manner.

Connect at 1500 ohm 10 watt resistor, paralleled by a 0.15 $\mu$ F. AC type capacitor, between a known good earth ground (water pipe, conduit etc.) and the exposed metallic parts, one at a time. Measure the AC voltage across the combination of 1500 ohm resistor and 0.15 $\mu$ F capacitor. Voltage measured must not exceed 0.3 volts RMS. This corresponds to 0.2 milliamp. AC. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



### 3. PRODUCT SAFETY NOTICE

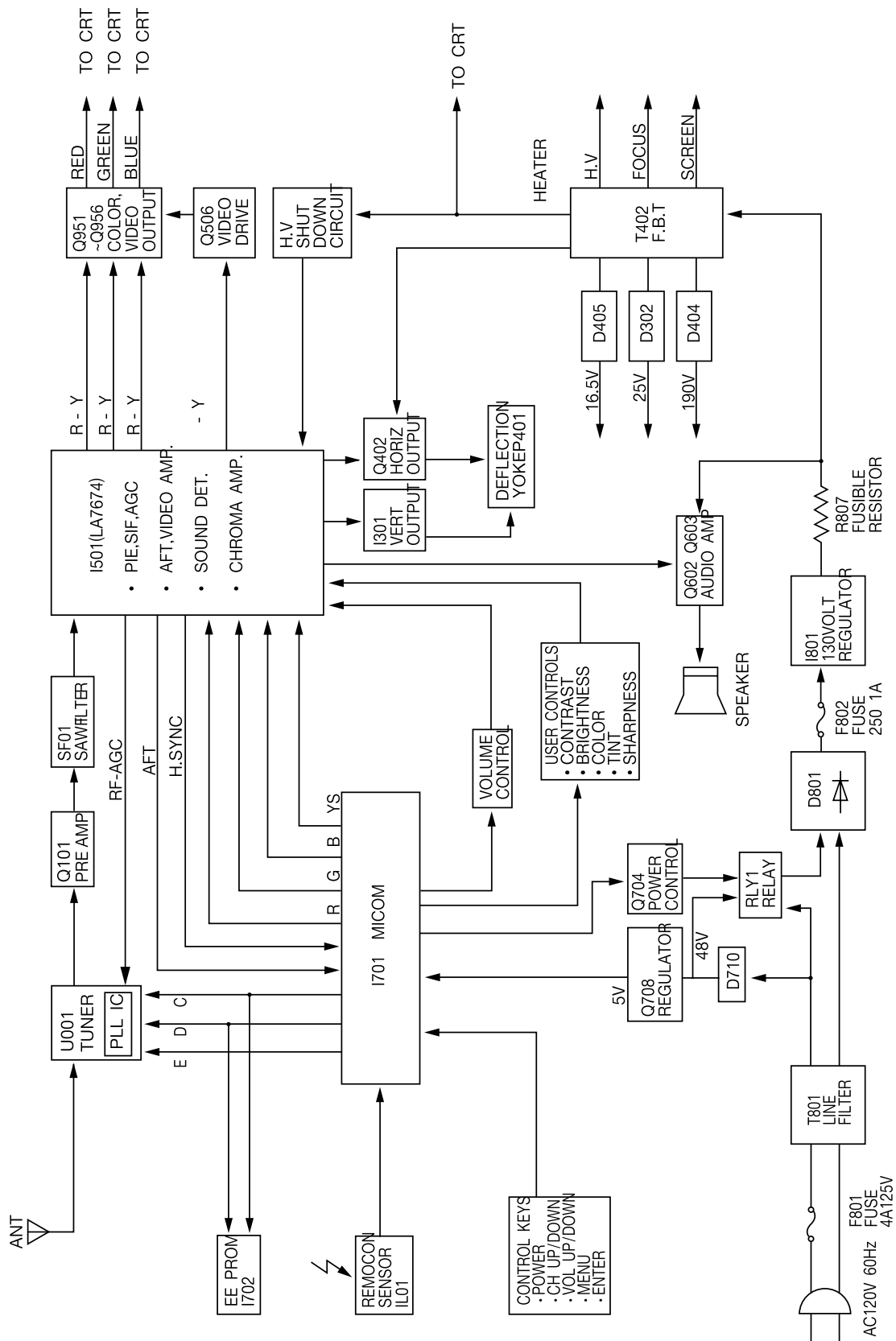
Many electrical and mechanical parts in this chassis have special safety-related characteristics. These characteristics are often passed unnoticed by a visual inspection and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by shading on the schematic diagram and the parts list.

Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create X-ray radiation or other hazards.

### 4. SERVICE NOTES

- 1) When replacing parts or circuit boards, clamp or bend the lead wires to terminals before soldering.
- 2) When replacing a high wattage resistor (metal oxide film resistor) in the circuit board, keep the resistor min 1/2 inch away from circuit board.
- 3) Keep wires away from high voltage or high temperature components.

# BLOCK DIAGRAM



# ■ GENERAL ADJUSTMENTS

## 1. GENERAL

In the majority of cases, all color televisions will need only slight touch-up adjustment upon installation. Check the basic characteristics such as height, focus and sub-bright. Observe the picture for good black and white details without objectionable color shading. If color shading is evident, demagnetize the receiver. If color shading still persists, perform purity and convergence adjustments. This should be all that is necessary to achieve Optimum receiver performance.

## 2. VERTICAL HEIGHT ADJUSTMENT

- 1) Tune in an active channel.
- 2) Adjust brightness and contrast controls for a good picture.
- 3) Adjust vertical height control (R315) for approximately one half inch over scan at top and bottom of picture screen.
- 4) Vertical centering adjustment VR316  
Horizontal centering adjustment VR556.

## 3. FOCUS ADJUSTMENT

- 1) Tune in an active channel.
- 2) Adjust brightness, sharpness and contrast controls for a good picture.
- 3) Adjust focus control (part of T402) for sharp scanning lines and/or sharp picture.

## 4. RF AGC ADJUSTMENT

- 1) Tune in an active channel.
- 2) Using the attenuator, apply the signal of 60dBm to the antenna input terminal.
- 3) Turn RF AGC control (VR555) full clockwise until snow or/and noise appears in the picture, then slowly turn control counterclockwise until snow or/and noise disappears.

## 5. HIGH VOLTAGE CHECK

High voltage is not adjustable but must be checked to verify that the receiver is operating within safe and efficient design limitations as specified:

- 1) Operate Receiver for at least 15 minutes at 120V AC line.
- 2) Set brightness sharpness, contrast and color control to minimum position (Zero beam).
- 3) Connect accurate high voltage meter to CRT anode.  
The reading should be 24.4kv(28.6kv)  
(DTQ-14 ----- : 22.6kv ~ 24.6kv)  
(DTQ-20 ----- : 26.1kv ~ 28.8kv)

If a correct reading cannot be obtained, check circuitry for malfunctioning components.

## 6. X-RADIATION PROTECTION C I R C U I T T E S T

When service has been performed on the horizontal deflection system, high voltage system or B+ system, the X-RADIATION protection circuit must be tested for proper operation as follows:

- 1) Operate receiver for at least 15 minutes at 120V AC line.
- 2) Adjust all customer controls for normal picture and sound.
- 3) Check the voltage of D401 cathode. It's voltage should be about 22V DC.
- 4) Connect the cathode of diode D302 and D401 through a 2.7K ohm, 1/4W Resistor(R313).
- 5) To start operation, remove the resistor and touch the cathode of D401 to chassis ground with a short clip lead (Remove short clip lead as soon as the set operates again with normal picture).
- 6) If the operation of horizontal osc. does not stop in step The circuit must be repaired, before the set is returned to the customer.

## 7. CRT GRAY SCALE ADJUSTMENT

- 1) Tune in an active channel.
- 2) Set the COLOR control to minimum.
- 3) Turn the SCREEN control (on T402 fully counterclockwise.)
- 4) Rotate the RED, GREEN and BLUE BIAS controls (R971, R972, R973) counterclockwise from the maximum, set them to the position where notches in the knobs become parallel to the surface of P.C. Board.
- 5) Set the GREEN and BLUE DRIVE controls (R975, R974) to the mid position.
- 6) Turn the service switch SW20 (Service Position) on the CRT board.
- 7) Rotate the SCREEN control (on T402) gradually clockwise until the second horizontal line following the first line appears slightly on the screen. Then turn fully counterclockwise the two BIAS controls corresponding to the colors of the first and the second horizontal lines to eliminated the lines.
- 8) Set the SCREEN control to the position where the third horizontal line lights slightly on the screen.
- 9) Adjust the two BIAS control set to the minimum in item 7) above to obtain the slightly lighted horizontal line in the same levels of three (red, green, blue) colors. (The line should be white if the BIAS controls are adjusted properly.)
- 10) Turn the service switch SW20 again (Normal position on the CRT board.)
- 11) Press PICTURE-SEL, P-UP and set the brightness and contrast controls to the maximum.
- 12) Adjust the BLUE and GREEN DRIVE control to obtain proper white-blanced picture in high light areas.
- 13) Using P-SEL, P-DN key, set the brightness and contrast controls to obtain dark gray raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the BIAS controls and DRIVE controls to obtain a good white balance in both low and high light areas.

## 8. SUB-BRIGHTNESS ADJUSTMENT

- 1) Tune in a color program.
- 2) Set the CONTRAST control to maximum and the BRIGHTNESS control to maximum and the SHARPNESS control to the center position.
- 3) Set the COLOR and TINT controls to center.
- 4) Set the SUB-BRIGHT control R554 to center and leave the receiver on five minutes in this state.
- 5) Watching the picture carefully, adjust the SUB-BRIGHT control in the position where the picture does not show evidence of blooming in high brightness area and not appear too dark in low bright area.
- 6) Check for BRIGHTNESS controls at both extremes.
- 7) If the picture does not appear dark with the CONTRAST and BRIGHTNESS control turned to minimum, or not appear bright with the controls turned to maximum, adjust the SUB-BRIGHT control again for an acceptable picture.

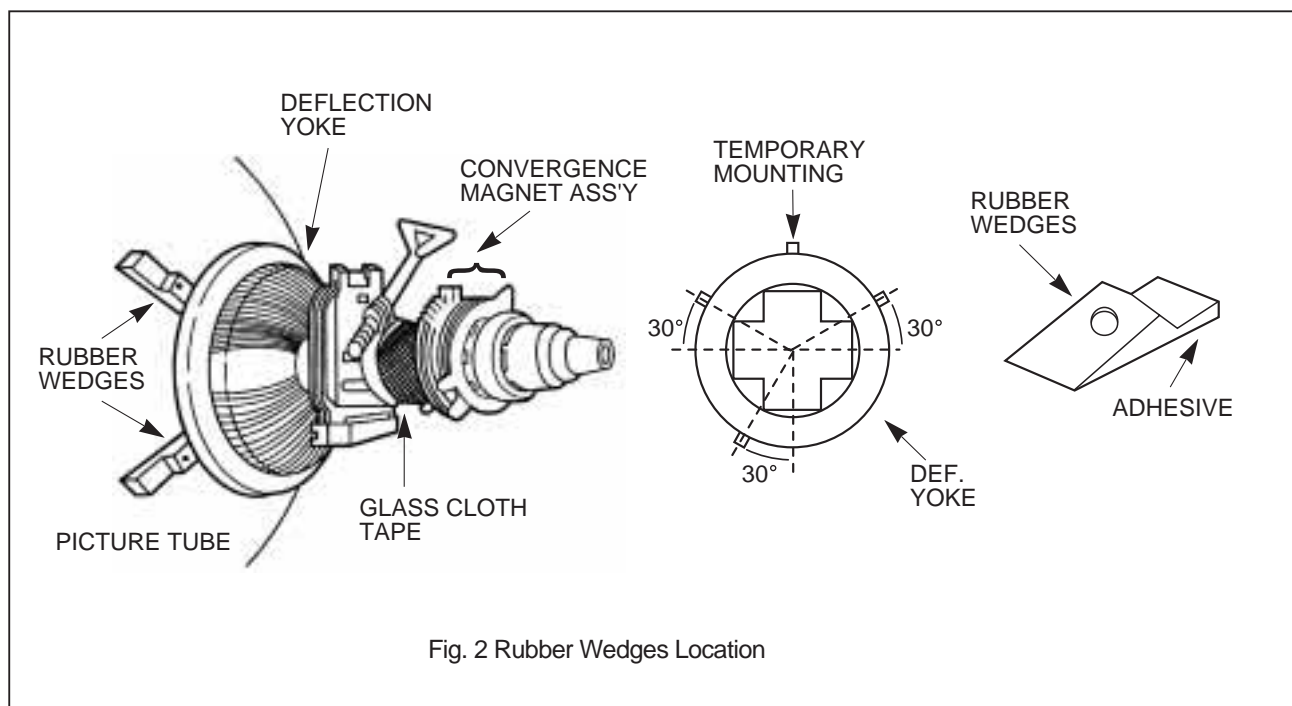
## 9. CONVERGENCE MAGNET ASSEMBLY POSITIONING

If Convergence magnet assembly and rubber wedges need mechanical positioning follow figure 2.

## 9-1. COLOR PURITY ADJUSTMENT

**NOTE :** Before attempting any purity adjustments, the receiver should be operated for at least 15 minutes.

- 1) Demagnetize the picture tube with a degaussing coil.
- 2) Adjust the CONTRAST and BRIGHTNESS controls to maximum
- 3) Adjust RED and BLUE Bias controls (R971 and R973) to provide only a green raster. Adjust the GREEN BIAS control (R972) if necessary.
- 4) Loosen the clamp screw holding the yoke, and slide the yoke backward to provide vertical green belt(zone) in the picture screen.
- 5) Remove the Rubber Wedges.
- 6) Rotate and spread the tabs of the purity magnet (See figure 2) around the neck of the picture tube until the green belt is in the center of the screen. At the same time, center the raster vertically.
- 7) Move the yoke slowly forward until a uniform green screen is obtained. Tighten the clamp screw of the yoke temporarily.
- 8) Check the purity of the red and blue raster by adjusting the BIAS controls.
- 9) Obtain a white raster, referring to "CRT GRAY SCALE ADJUSTMENT".
- 10) Proceed with convergence adjustment.



## 9-2. CONVERGENCE ADJUSTMENTS

**NOTE :** Before attempting any purity adjustments, the receiver should be operated for at least 15 minutes.

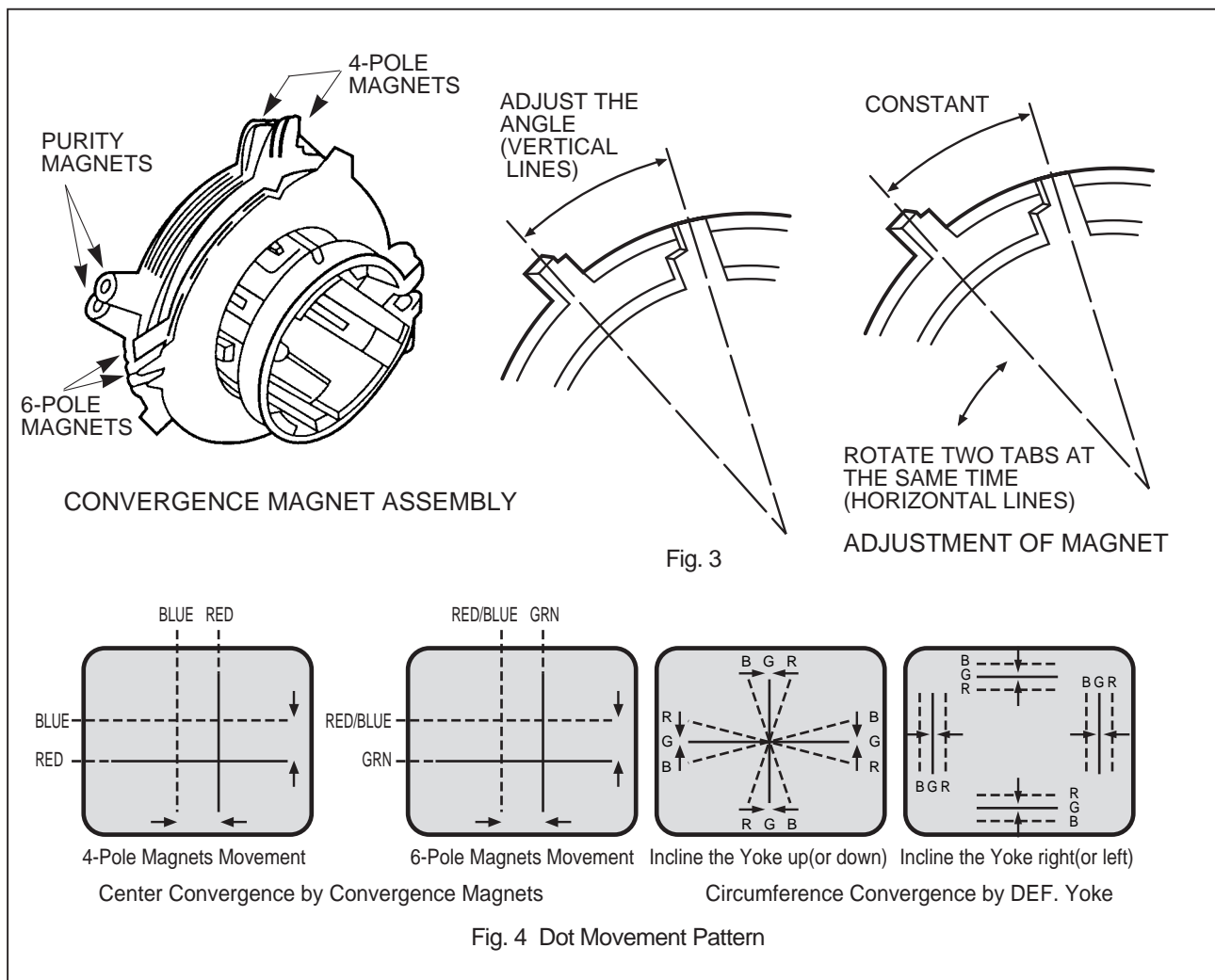
### A. CENTER CONVERGENCE ADJUSTMENT

- 1) Receive crosshatch pattern with a crosshatch signal generator.
- 2) Adjust the BRIGHTNESS and CONTRAST Controls for a good picture.
- 3) Adjust two tabs of the 4-Pole Magnets to change the angle between them (See Fig. 3) and superimpose red and blue vertical lines in the center area of the picture screen. (See Fig. 4)
- 4) Turn both tabs at the same time keeping their angles constant to superimpose red and blue horizontal lines at the center of the screen. (See Fig. 4)
- 5) Adjust two tabs of 6-Pole Magnets to superimpose red/blue line with green on top of each other. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
- 6) Repeat adjustments 3), 4), 5) keeping in mind red, green and blue movement, because 4-Pole Magnets and 6-Pole Magnets interact and make dot movement complex.

### B. CIRCUMFERENCE CONVERGENCE ADJUSTMENT

**NOTE :** This adjustment requires Rubber Wedge Kit.

- 1) Loosen the clamping screw on deflection yoke to allow the yoke to tilt.
- 2) Place a wedge as shown in figure 2 temporarily. (Do not remove cover paper on adhesive part of the wedge.)
- 3) Tilt front of the deflection yoke up or down to obtain better convergence in circumference. (See Fig. 4) Push the mounting wedge into the space between picture and the yoke to hold the yoke temporarily.
- 4) Place other wedge into bottom space and remove the cover paper to stick.
- 5) Tilt front of the yoke right or left to obtain better convergence in circumference. (See Fig. 4)
- 6) Hold the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to hold the yoke.
- 7) Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
- 8) After placing three wedges, re-check overall convergence. Tighten the screw firmly to hold the yoke tightly in place.
- 9) Stick 3 adhesive tapes on wedges as shown in figur3,2.





**NOTE :** THIS RECEIVER IS TRANSISTORIZED AND SPECIAL CARE MUST BE TAKEN WHEN SERVICING. READ THE FOLLOWING (NOTES BEFORE ATTEMPTING ALIGNMENT)

- ## TEST EQUIPMENT

Digital voltmeter .....	National Model VP-2600A or equivalent
Oscilloscope .....	Tektronix Model 2215A or equivalent.
Direct/Low-capacity probe .....	Tektronix Model P6120 or equivalent (Accessory of oscilloscope)
Color-Bar/Dot/Crosshatch generator .....	Tektronix Model 146 or equivalent.
PIF sweep marker generator .....	Nihon Tsushinki Model 4723 or equivalent
Power supply .....	Academy Model 150A or equivalent
Isolation transformer .....	Voltage adjustable type having capacity of at least 150 watts

The diagram illustrates the setup for Picture IF Sweep Alignment and the resulting AFT Response Curve.

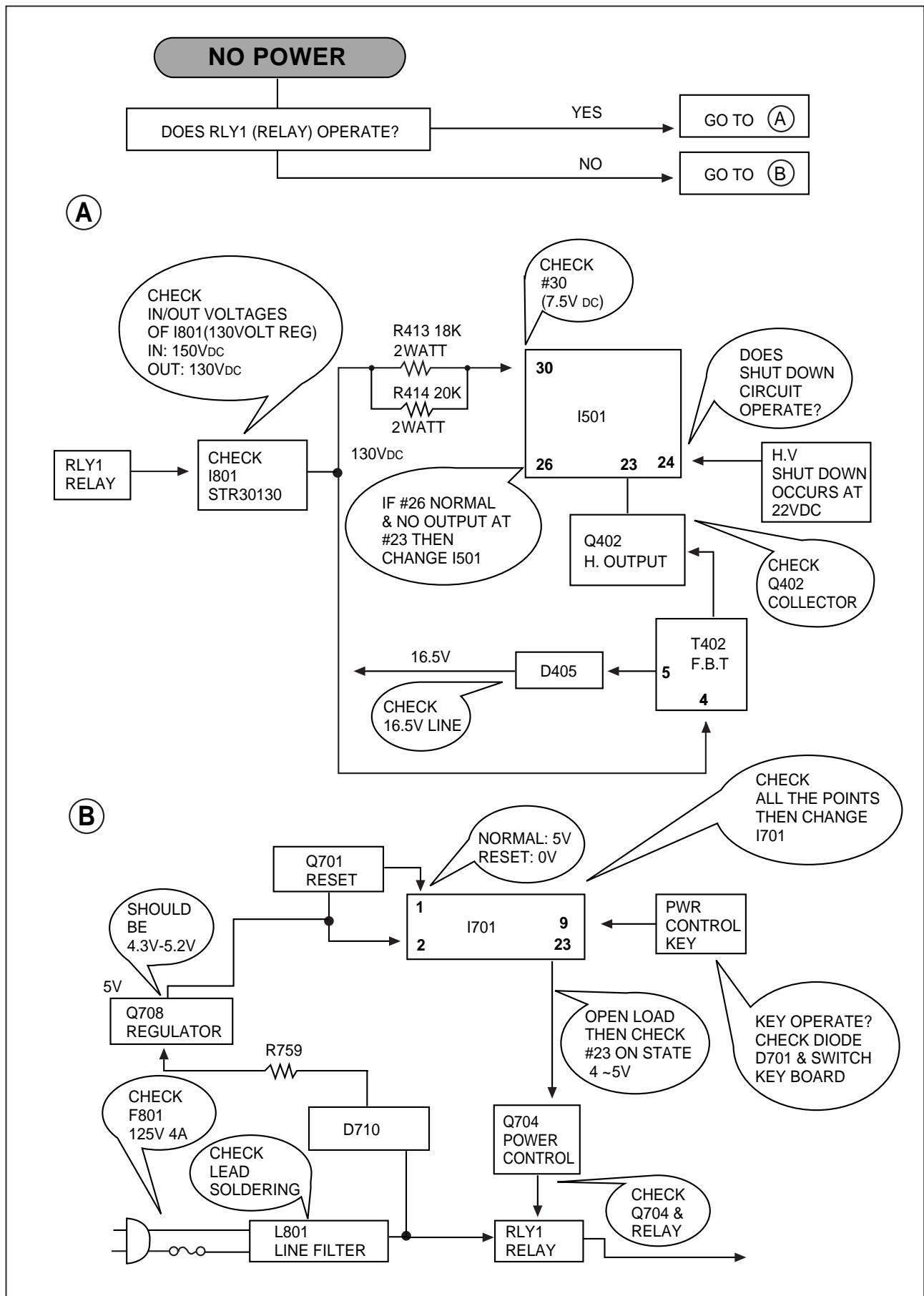
**Fig. 5 Picture IF Sweep Alignment:** This schematic shows the connections for aligning the picture IF sweep. It includes a **MAIN BOARD** with test points TP3, TP5, TP6, TP1, and TP4. A **BIAS POWER SUPPLY A (16.5V)** is connected to TP3 and TP5. A **BIAS POWER SUPPLY B (4-5V)** is connected to TP6. A **PIF SWEEP/MARKER GEN.** is connected to TP1 and TP4. An **OSCILLOSCOPE** is connected to the test points, with its X and Y inputs also receiving signals from the PIF SWEEP/MARKER GEN. and the BIAS POWER SUPPLY A.

**Fig. 7 AFT Response Curve:** This graph shows the AFT Response Curve. The horizontal axis represents frequency, and the vertical axis represents the AFT response. The curve is a trapezoidal shape, centered at **45.75MHz**. The peak of the curve is labeled **P 45.75MHz**.

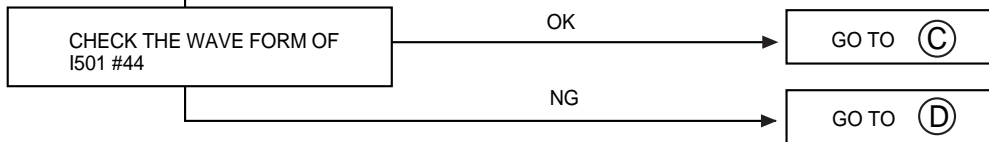
- 10



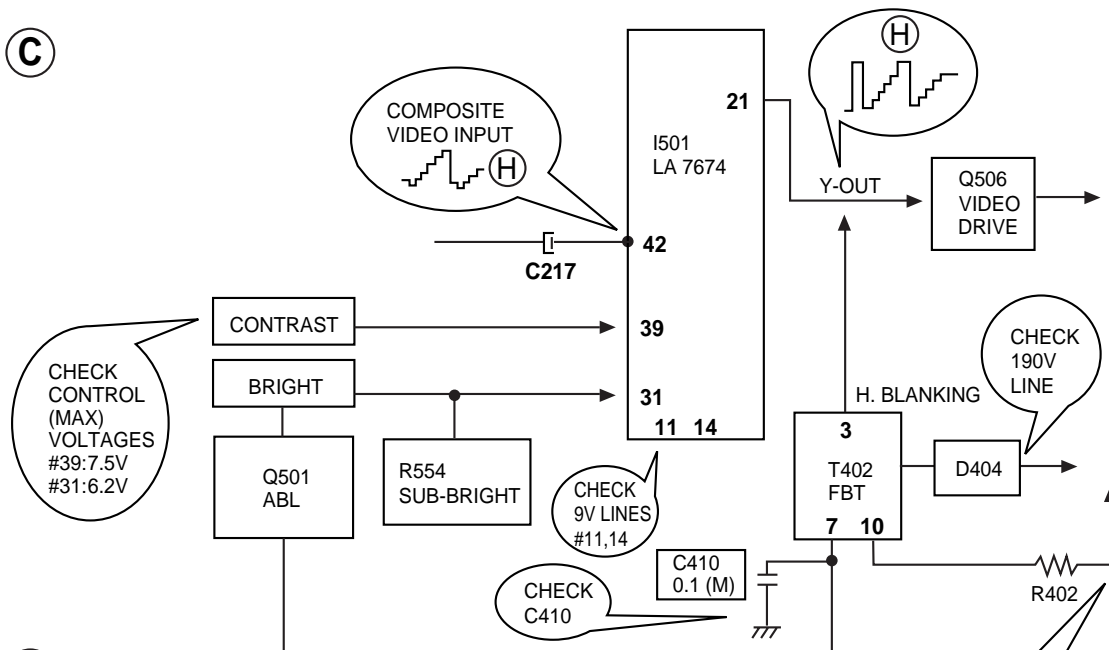
# TROUBLE SHOOTING CHARTS



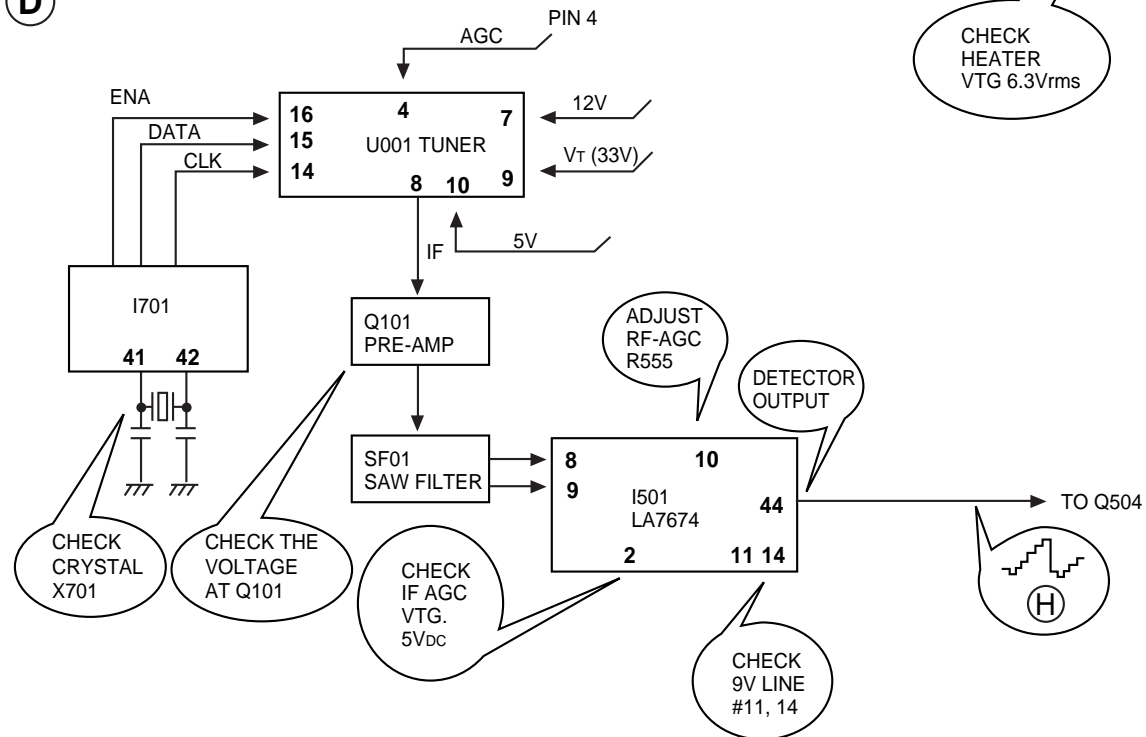
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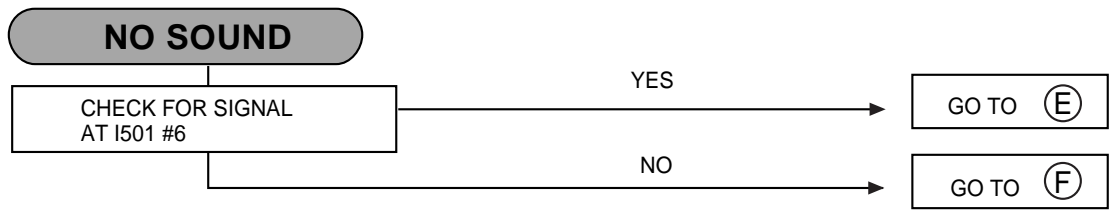


(C)

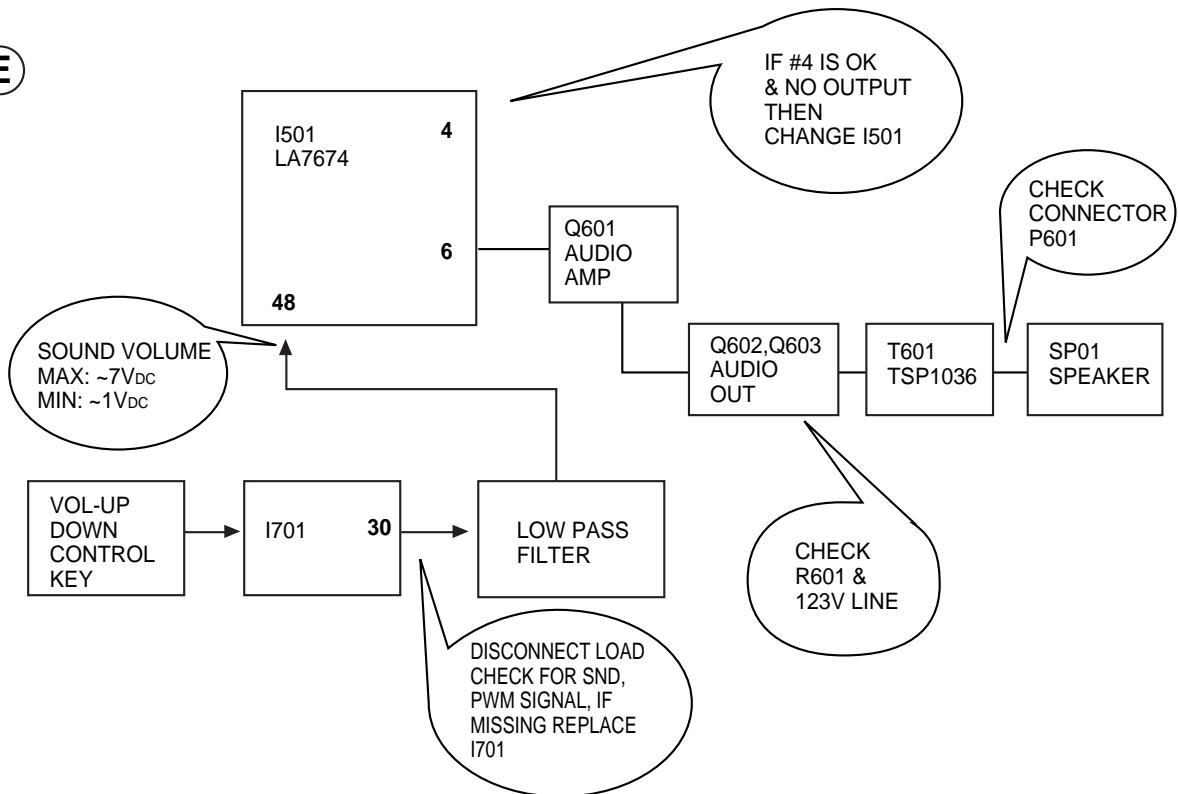


(D)

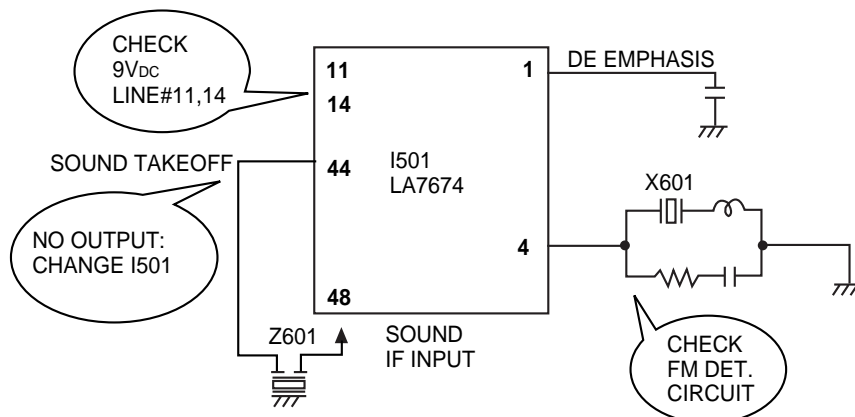




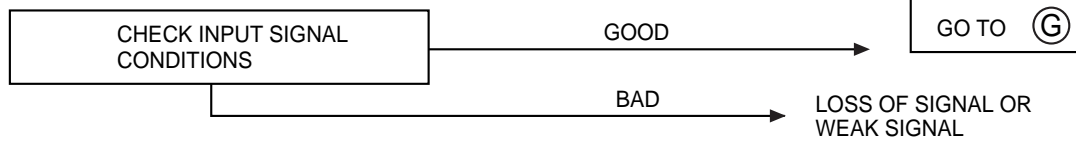
**E**



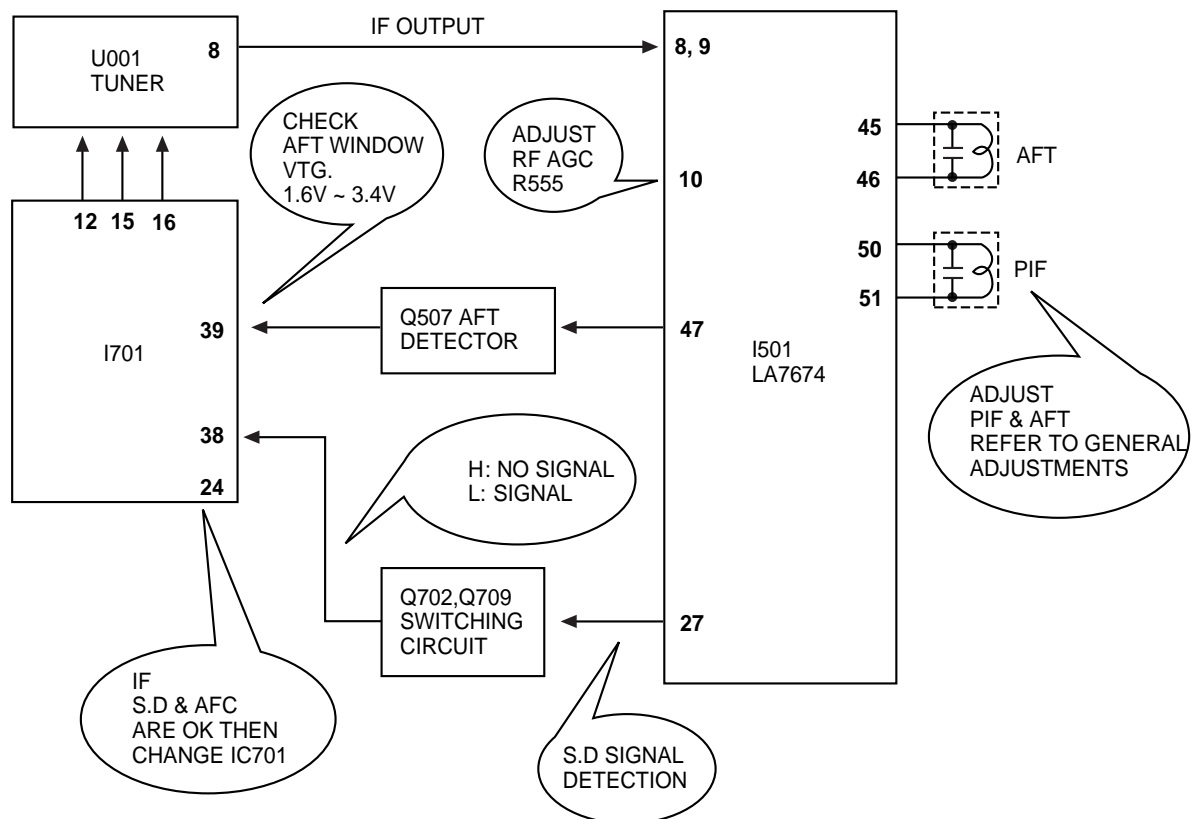
**F**



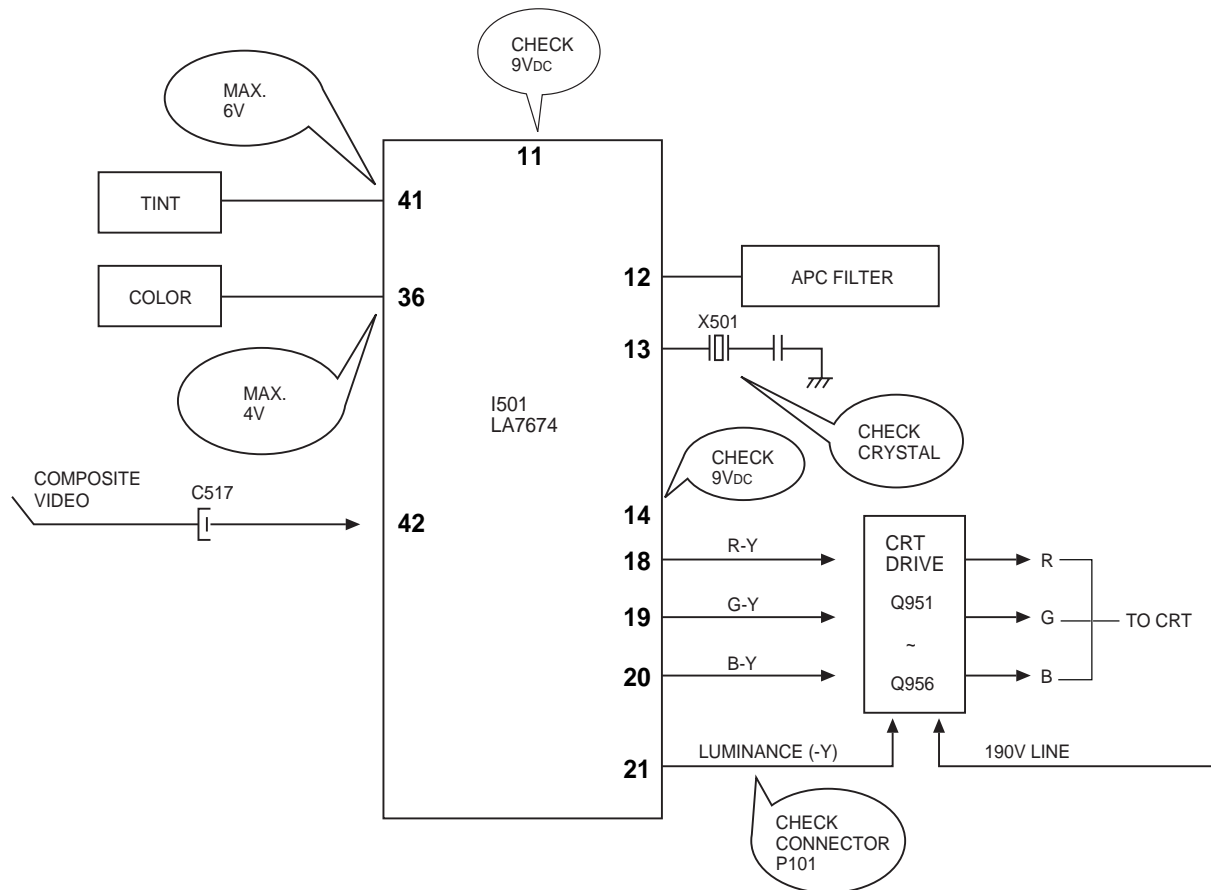
## CH DON'T STOP



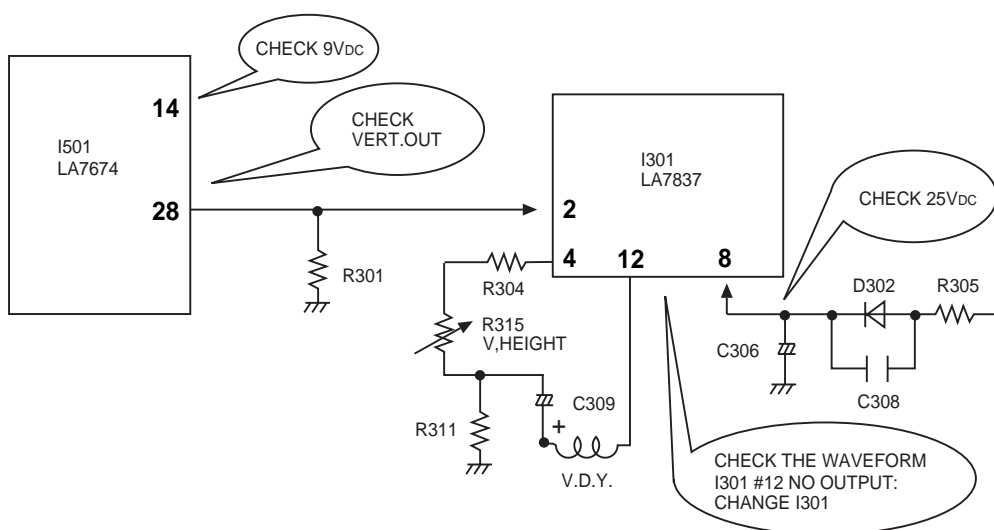
**G**



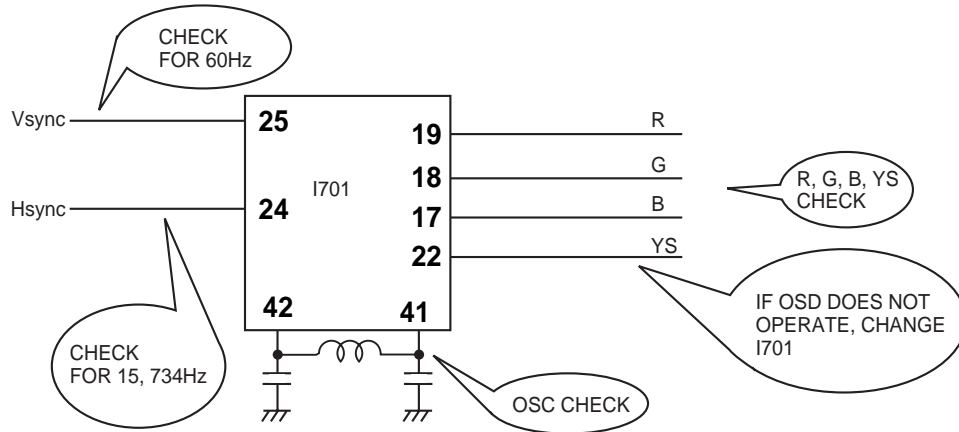
## NO COLOR



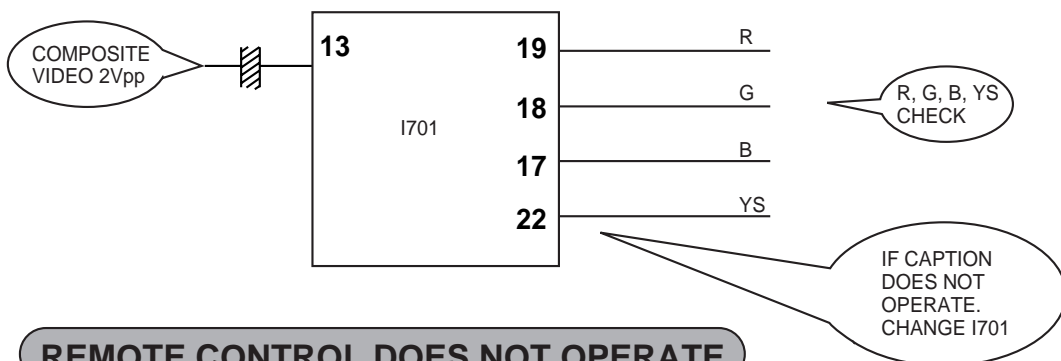
## NO VERTICAL DEFLECTION



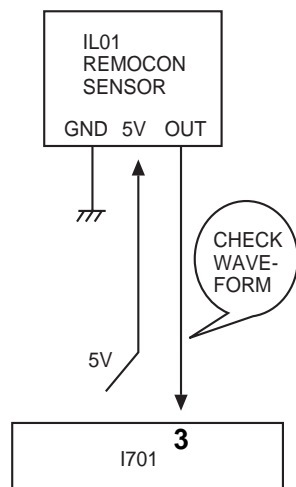
## ON SCREEN DISPLAY DOES NOT OPERATE



## CAPTION DISPLAY DOES NOT OPERATE



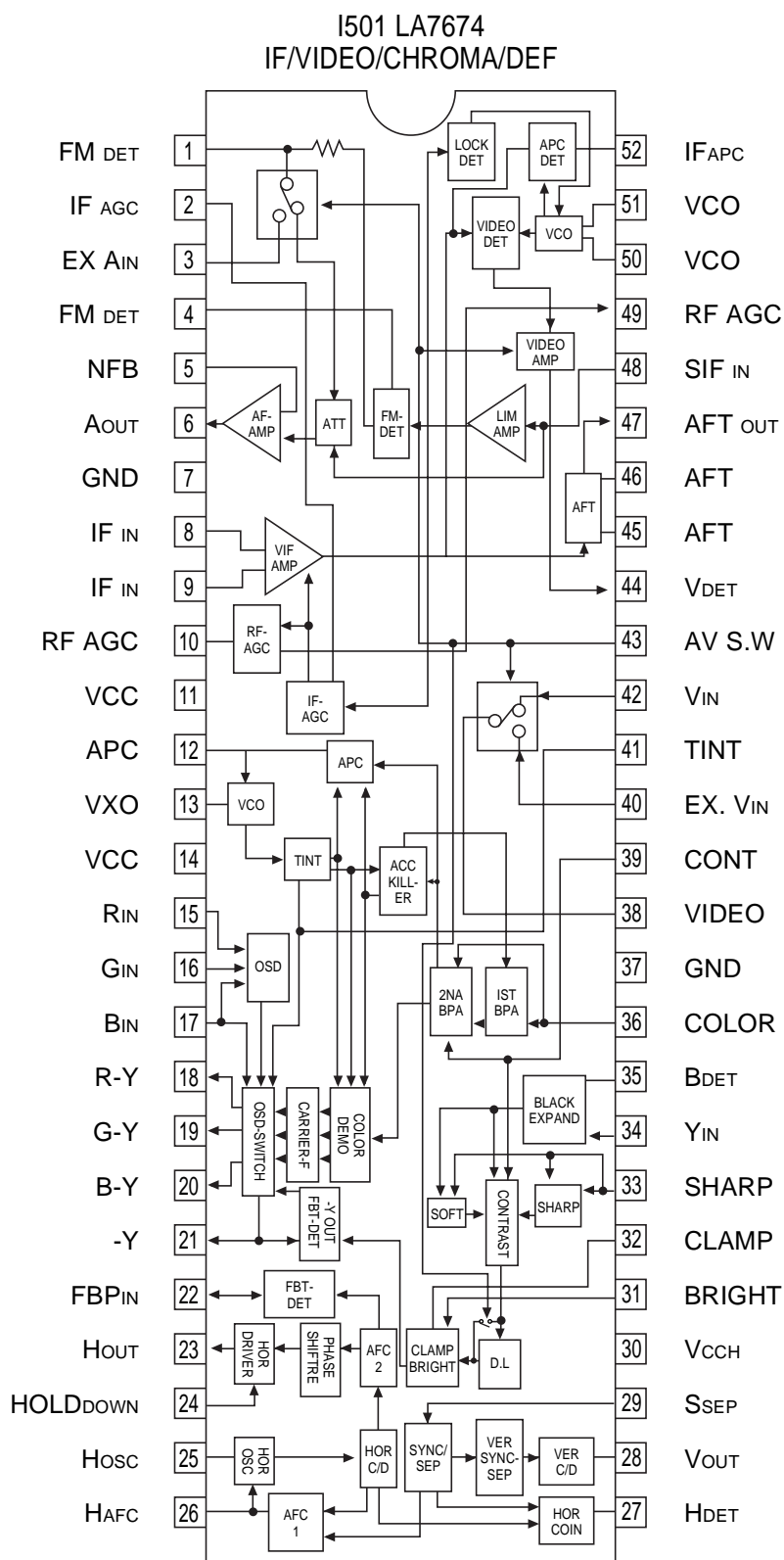
## REMOTE CONTROL DOES NOT OPERATE



## DESCRIPTION OF SEMICONDUCTORS

LA7674 (VIF/SIF/VIDEO/CHROMA/DEFLECTION)

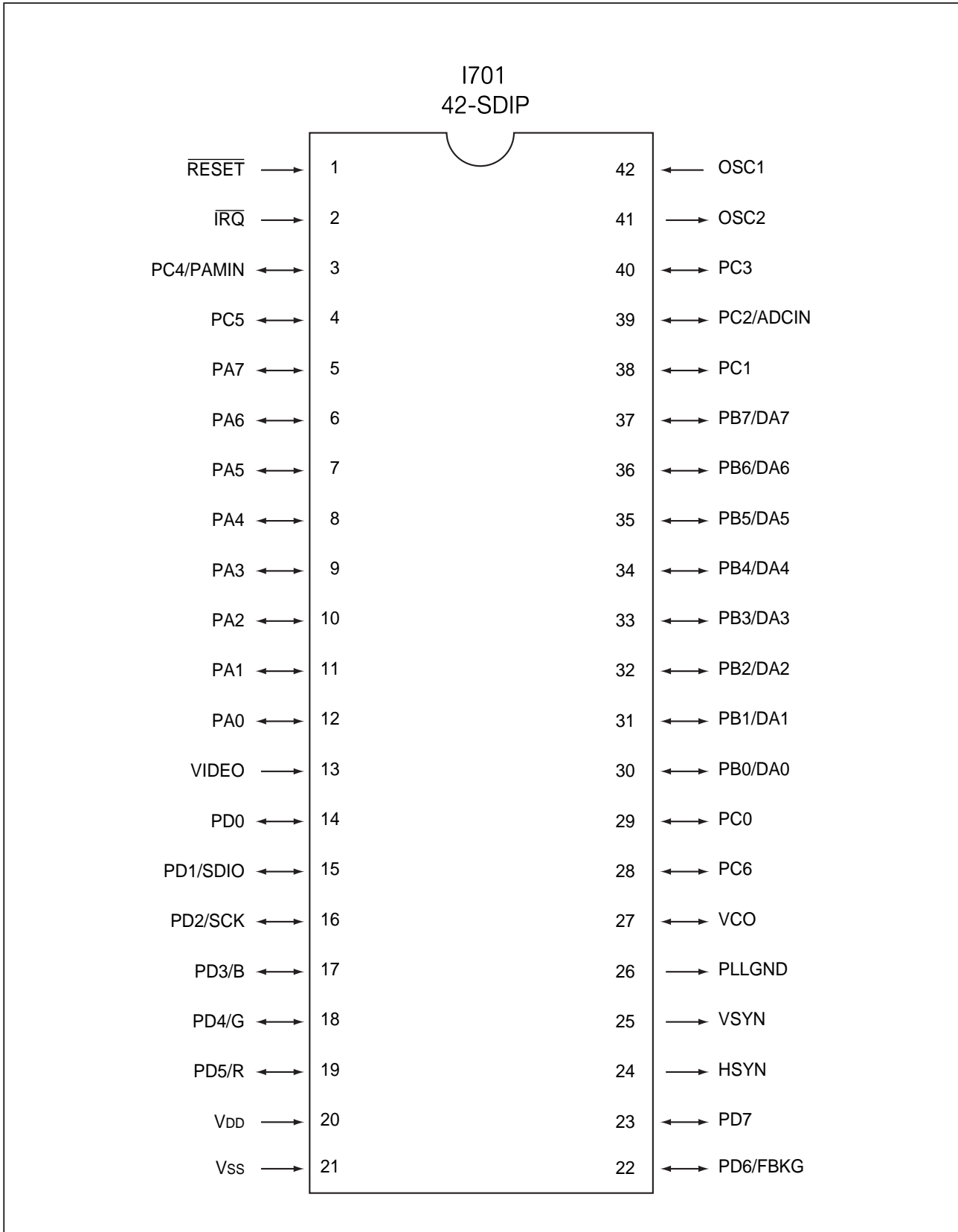
1. Case Outline : SDIP 52P
2. Pin Connections/Block Diagram





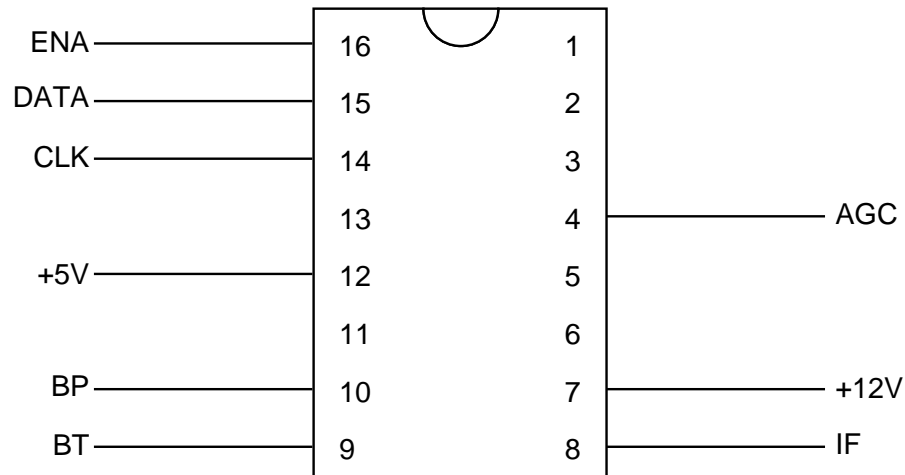
## ■ LSC420142B/43B (TUNING CONTROL)

- 1) Case Outline : DIP-42S plastic package
- 2) Function: C-MOS 4 bit microcomputer, PWM control, CHANNEL SEARCH/MEMORY, ON/OFF, timer, sleep time, on screen display, TV/CATV (STD,HRC,IRC)
- 3) PIN connections

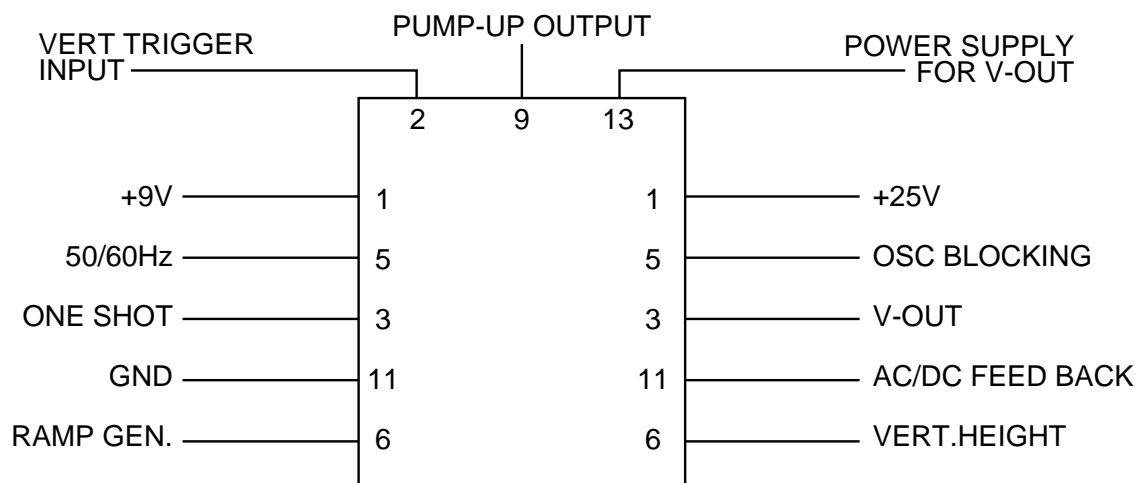


## DESCRIPTION OF SEMICONDUCTORS AND TUNER

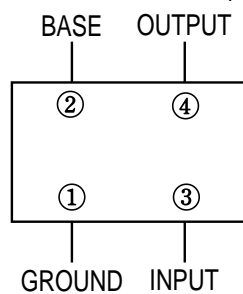
TUNER(U001)



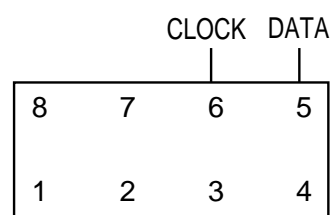
VERTICAL OUTPUT(I301)



130V REGULATOR(I801)



EEPROM(I702)



## SAFETY PRECAUTIONS

### Product safety servicing guidelines for color television receivers

**CAUTION** : Do not attempt to modify this product in any way. Unauthorized modifications will not only void the warranty, but may lead to your being liable for any resulting property damage or user injury.

Service work should be performed only after you are thoroughly familiar with all of the following safety checks and servicing guidelines. To do otherwise, increases the risk of potential hazards and injury to the user.

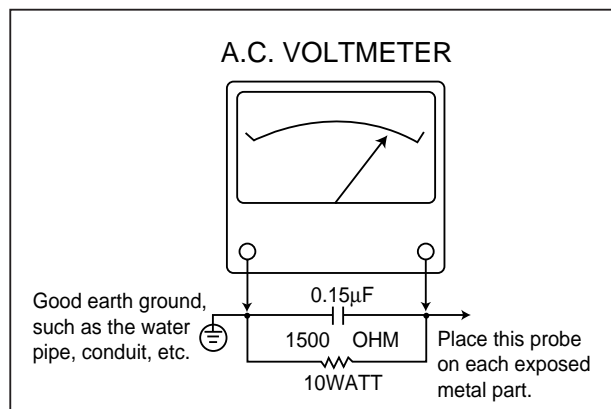
#### SAFETY CHECKS

After the original service problem has been corrected, a check should be made of the following:

#### SUBJECT : FIRE & SHOCK HAZARD

1. Be sure that all components are positioned in such a way as to avoid possibility of adjacent component shorts. This is especially important on those chassis which are transported to and from the repair shop.
2. Never release a repair unless all protective devices such as insulators, barriers, covers, shields, strain reliefs, and other hardware have been reinstalled per original design.
3. Soldering must be inspected to discover possible cold solder joints, frayed leads, damaged insulation (including A.C. cord), solder splashes or sharp solder points. Be certain to remove all loose foreign particulates.
4. Check for physical evidence of damage or deterioration to parts and components, and replace if necessary follow original layout, lead length and dress.
5. No leads or components should touch a receiving tube or a resistor rated at 1 watt or more. Lead tension around protruding metal surfaces must be avoided.
6. All critical components such as fuses, flameproof resistors, capacitors, etc. must be replaced with exact factory types. Do not use replacement components other than those specified or make unrecommended circuit modifications.
7. After re-assembly of the set always perform an A.C. leakage test on all exposed metallic parts of the cabinet, (the channel selector knob, antenna terminals, handle and screws) to be sure the set is safe to operate without danger of electrical shock. **Do not use a line isolation transformer during this test.** Use an A.C. voltmeter, having 5000 ohms per volt or more sensitivity, in the following manner : connect a 1500 ohm 10 watt resistor, paralleled by a 0.15 $\mu$ F. 150V A.C. type capacitor between a known good earth ground (water pipe, conduit, etc.) and the exposed metallic parts, one at a time. Measure the A.C. voltage across the combination of 1500 ohm resistor and 0.15 $\mu$ F capacitor. Reverse the A.C. plug and repeat A.C. voltage measurements for each exposed metallic part. Voltage measured must not exceed 0.75 volts R.M.S.

This corresponds to 0.5 milliamp A.C. Any value exceeding this limit constitutes a potential shock hazard and must be corrected immediately.



#### GRAPHIC SYMBOLS :



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the service personnel to the presence of uninsulated "dangerous voltage" that may be of sufficiently magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the service personnel to the presence of important safety information in service literature.

#### SUBJECT : X-RADIATION

1. Be sure procedures and instructions to all service personnel cover the subject of X-radiation. The only potential source of X-rays in current T.V. receivers is the picture tube. However, this tube does not emit X-rays when the high voltage is at the factory specified level. The proper value is given in the applicable schematic. Operation at higher voltages may cause a failure of the picture tube or high voltage supply and, under certain circumstances, may produce radiation in excess of desirable levels.
2. Only factory specified C.R.T. anode connectors must be used. Degaussing shields also serve as X-ray shield in color sets. Always re-install them.
3. It is essential that the serviceman has available an accurate and reliable high voltage meter. The calibration of the meter should be checked periodically against a reference standard. Such as the one available at your distributor.
4. When the high voltage circuitry is operating properly there is no possibility of an X-radiation problem. Every time a color chassis is serviced, the brightness should

be run up and down while monitoring the high voltage with a meter to be certain that the high voltage does not exceed the specified value and that it is regulating correctly. We suggest that you and your service organization review test procedures so that voltage regulation is always checked as a standard servicing procedure. And that the high voltage reading be recorded on each customer's invoice.

5. When troubleshooting and making test measurements in a receiver with a problem of excessive high voltage, avoid being unnecessarily close to the picture tube and the high voltage compartment.  
Do not operate the chassis longer than is necessary to locate the cause of excessive voltage.

6. Refer to HV, B+ and Shutdown adjustment procedures described in the appropriate schematic and diagrams(when used).

#### SUBJECT : IMPLOSION

1. All direct viewed picture tubes are equipped with an integral implosion protection system, but care should be taken to avoid damage during installation. Avoid scratching the tube. If scratched, replace it.

2. Use only recommended factory replacement tubes.

#### SUBJECT : TIPS ON PROPER INSTALLATION

1. Never install any receiver in closed-in recess, cubbyhole or closely fitting shelf space over, or close to heat duct, or in the path of heated air flow.

2. Avoid conditions of high humidity such as : Outdoor patio installations where dew is a factor. Near steam radiators where steam leakage is a factor, etc.

3. Avoid placement where draperies may obstruct rear venting. The customer should also avoid the use of decorative scarves or other coverings which might obstruct ventilation.

4. Wall and shelf mounted installations using a commercial mounting kit, must follow the factory approved mounting instructions. A receiver mounted to a shelf or platform must retain its original feet(or the equivalent thickness in spacers) to provide adequate air flow across the bottom, bolts or screws used for fasteners must not touch any parts or wiring. Perform leakage test on customized installations.

5. Caution customers against the mounting of a receiver on sloping shelf or a tilted position, unless the receiver is properly secured.

6. A receiver on a roll-about cart should be stable on its mounting to the cart. Caution the customer on the hazards of trying to roll a cart with small casters across thresholds or deep pile carpets.

7. Caution customers against the use of a cart or stand which has not been listed by Underwriters Laboratories, Inc. For use with their specific model of television receiver or generically approved for use with T.V.'s of the same or larger screen size.

**WARNING:**BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION,PRECAUTION "SAFETY PRECAUTION" AND "PRODUCT SAFETY NOTICE" ON PAGE1 OF THIS MANUAL

✓ **Caution:** In this Service Manual, some parts can be changed for improving, their performance without notice in the parts list. So, if you need the latest parts information, please refer to PPL(Parts Price List) in Service information Center(<http://svc.dwe.co.kr>)

## REPLACEMENT PARTS LIST

LOC.	PART-CODE	PART-NAME	PART-DESC
C101	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C102	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C103	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C104	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP
C105	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C106	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
C301	CMXM2A104J	C MYLAR	100V 0.1MF J TP
C302	CMXM2A103J	C MYLAR	100V 0.01MF J (TP)
C303	CEXD1H229Q	C ELECTRO	50V RT 2.2MF (6.3X11) TP
C304	CEXF1H470V	C ELECTRO	50V RSS 47MF (6.3X11) TP
C305	CXSL2H100D	C CERA	500V SL 10PF D (TAPPING)
C306	CEXF1V471V	C ELECTRO	35V RSS 470MF (10X20) TP
C307	CEXD1H229Q	C ELECTRO	50V RT 2.2MF (6.3X11) TP
C308	CCXB2H471K	C CERA	500V B 470PF K (TAPPING)
C309	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
C310	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C401	CEXF2C109V	C ELECTRO	160V RSS 1MF (6.3X11) TP
C402	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)
C403	CCXB2H471K	C CERA	500V B 470PF K (TAPPING)
C404	CMYH3C622J	C MYLAR (20")	1.6KV 6200PF J (BUP)
C404	CMYH3C602J	C MYLAR (14")	1.6KV 6000PF J (BUP)
C405	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C406	CEXF1E102V	C ELECTRO	25V RSS 1000MF (13X20) TP
C407	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C408	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C409	CEXF1H220V	C ELECTRO	50V RSS 22MF (5X11) TP
C410	CMXM2A104J	C MYLAR	100V 0.1MF J TP
C411	CCXB2H152K	C CERA	500V B 1500PF K (TAPPING)
C412	CCXB2H152K	C CERA	500V B 1500PF K (TAPPING)
C413	CMYE2D514J	C MYLAR (20")	200V 0.51MF J (PL)
C413	CMYE2D474J	C MYLAR (14")	200V 0.47MF J (PL)
C414	CEXF2C109V	C ELECTRO	160V RSS 1MF (6.3X11) TP
C415	CEXF2E100V	C ELECTRO	250V RSS 10MF (10X20) TP
C416	CCXB2H102K	C CERA	500V B 1000PF K (TAPPING)
C501	CEXF1C102V	C ELECTRO	16V RSS 1000MF (10X20) TP
C502	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C503	CCZB1H471K	C CERA	50V B 470PF K (AXIAL)
C504	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C505	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C506	CEXF1H228V	C ELECTRO	50V RSS 0.22MF (5X11) TP
C507	CEXF1H108V	C ELECTRO	50V RSS 0.1MF (5X11) TP

LOC.	PART-CODE	PART-NAME	PART-DESC
C508	CZSL1H330J	C CERA	50V SL 33PF J (AXIAL)
C509	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C510	CZSL1H330J	C CERA	50V SL 33PF J (AXIAL)
C511	CZCH1H200J	C CERA	50V CH 20PF J (AXIAL)
C512	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C513	CZSL1H300J	C CERA	50V SL 30PF J (AXIAL)
C514	CCZB1H910K	C CERA	50V B 91PF K (AXIAL)
C515	CEXF1H330V	C ELECTRO	50V RSS 33MF (6.3X11) TP
C516	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C517	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C518	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)
C519	CZSL1H470J	C CERA	50V SL 47PF J (AXIAL)
C520	CZSL1H220J	C CERA	50V SL 22PF J (AXIAL)
C521	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
C522	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
C523	CZSL1H240J	C CERA	50V SL 24PF J (AXIAL)
C524	CEXF1H478V	C ELECTRO	50V RSS 0.47MF (5X11) TP
C525	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C526	CMXB1H103J	C MYLAR	50V EU 0.01MF J (TP)
C527	CEXF1H108V	C ELECTRO	50V RSS 0.1MF (5X11) TP
C528	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C529	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C530	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C532	CMXB1H103J	C MYLAR	50V EU 0.01MF J (TP)
C533	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C534	CCZB1H820K	C CERA	50V B 82PF K (AXIAL)
C535	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C536	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C537	CZCH1H160J	C CERA	50V CH 16PF J (AXIAL)
C538	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
C539	CMXB1H333J	C MYLAR	50V EU 0.033MF J (TP)
C540	CCZB1H221K	C CERA	50V B 220PF K (AXIAL)
C541	CZSL1H510J	C CERA	50V SL 51PF J (AXIAL)
C542	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C543	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C544	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C545	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C601	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C603	CEXF2C479V	C ELECTRO	160V RSS 4.7MF (8X16) TP
C604	CEXF2C330V	C ELECTRO	160V RSS 33MF (13X20) TP
C701	CEXF1C470V	C ELECTRO	16V RSS 47MF (5X11) TP
C702	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C706	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C707	CCZF1E103Z	C CERA	25V F 0.01MF Z (AXIAL)
C708	CEXF1C471V	C ELECTRO	16V RSS 470MF (10X12.5)TP

LOC.	PART-CODE	PART-NAME	PART-DESC
C709	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C710	CEXF1H479V	C ELECTRO	50V RSS 4.7MF (5X11) TP
C713	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
C714	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)
C715	CCZB1H101K	C CERA	50V B 100PF K (AXIAL)
C716	CMXB1H682J	C MYLAR	50V EU 6800PF J (TAPPING)
C718	CEXF1H339V	C ELECTRO	50V RSS 3.3MF (5X11) TP
C719	CEXF1H109V	C ELECTRO	50V RSS 1MF (5X11) TP
C720	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)
C721	CEXF2C100C	C ELECTRO	160V RUS 10MF (10X16)TP
C722	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C723	CEXE1C330A	C ELECTRO	16V RS 33MF (5X11) TP
C724	CZSL1H220J	C CERA	50V SL 22PF J (AXIAL)
C725	CZSL1H220J	C CERA	50V SL 22PF J (AXIAL)
C726	CCZB1H221K	C CERA	50V B 220PF K (AXIAL)
C727	CEXF1H339V	C ELECTRO	50V RSS 3.3MF (5X11) TP
C728	CEXF1H229V	C ELECTRO	50V RSS 2.2MF (5X11) TP
C730	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
C801	CLYL2B104K	C LINE ACROSS	125/250V 0.1MF K (UL/CSA)
C802	CEXF1C101V	C ELECTRO	16V RSS 100MF (6.3X11) TP
C803	CEYM2D331T	C ELECTRO	200V LWF 330MF (25X50)
C804	CEXF2C100V	C ELECTRO	160V RSS 10MF (10X16) TP
C805	CEXF2C101V	C ELECTRO	160V RSS 100MF (16X25) TP
C806	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)
C807	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)
C808	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)
C809	CCXB2H222K	C CERA	500V B 2200PF K (TAPPING)
C888	CH1HEB271K	C CERA AC	AC250V 270PF B DE
C951	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
C952	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
C953	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
C954	CCXB3D102K	C CERA	2KV B 1000PF K (TAPPING)
C955	CEXF1H100V	C ELECTRO	50V RSS 10MF (5X11) TP
C956	CCZB1H102K	C CERA	50V B 1000PF K (AXIAL)
CA701	CN6XB-221M	C ARRAY	7P(6) 220PF M 50V 2.54MM
CA702	CN4XB-331M	C ARRAY	5P(4) 330PF M 50V 2.54MM
D101	DUZ12BM---	DIODE ZENER	UZ-12BM
D102	1UPC574J--	IC	UPC574J
D103	DUZ5R1BM--	DIODE ZENER	UZ-5.1BM
D104	D1N4148---	DIODE	1N4148 (TAPPING)
D301	D1N4003---	DIODE	1N4003 (TAPPING)
D302	D1N4937GP-	DIODE	1N4937GP (TAPPING)
D401	DUZ22BM---	DIODE ZENER	UZ-22BM
D402	D1N4937GP-	DIODE	1N4937GP (TAPPING)
D403	D1N4937GP-	DIODE	1N4937GP (TAPPING)



LOC.	PART-CODE	PART-NAME	PART-DESC
D404	D1N4937GP-	DIODE	1N4937GP (TAPPING)
D405	D1N4937GP-	DIODE	1N4937GP (TAPPING)
D501	DUZ9R1BM--	DIODE ZENER	UZ-9.1BM
D502	D1N4148---	DIODE	1N4148 (TAPPING)
D503	D1N4148---	DIODE	1N4148 (TAPPING)
D504	D1N4148---	DIODE	1N4148 (TAPPING)
D505	D1N4148---	DIODE	1N4148 (TAPPING)
D506	D1N4148---	DIODE	1N4148 (TAPPING)
D507	D1N4148---	DIODE	1N4148 (TAPPING)
D508	DUZ12BM---	DIODE ZENER	UZ-12BM
D509	D1N4148---	DIODE	1N4148 (TAPPING)
D601	D1N4148---	DIODE	1N4148 (TAPPING)
D701	DUZ3R9B---	DIODE ZENER	UZ-3.9B
D702	D1N4148---	DIODE	1N4148 (TAPPING)
D703	D1N4148---	DIODE	1N4148 (TAPPING)
D704	D1N4148---	DIODE	1N4148 (TAPPING)
D705	D1N4148---	DIODE	1N4148 (TAPPING)
D706	DUZ5R6BM--	DIODE ZENER	UZ-5.6BM(TAPPING)
D708	D1N4148---	DIODE	1N4148 (TAPPING)
D710	D1S1888---	DIODE	1S1888 (TAPPING)
D711	D1N4148---	DIODE	1N4148 (TAPPING)
D712	DUZ5R1BM--	DIODE ZENER	UZ-5.1BM
D713	DUZ5R1BM--	DIODE ZENER	UZ-5.1BM
D714	D1N4148---	DIODE	1N4148 (TAPPING)
D715	D1N4148---	DIODE	1N4148 (TAPPING)
D716	D1N4003---	DIODE	1N4003 (TAPPING)
D717	D1N4148---	DIODE	1N4148 (TAPPING)
D801	DPBS208GU-	DIODE BRIDGE	PBS208GU-CA
D802	D1N4148---	DIODE	1N4148 (TAPPING)
D951	D1N4148---	DIODE	1N4148 (TAPPING)
F801	5F1GB4021M	FUSE GLASS TUBE	UL/CSA MF51 4A 125V NM
F801A	4857415001	CLIP FUSE	PFC5000-0702
F801B	4857415001	CLIP FUSE	PFC5000-0702
F802	5F1GB1022M	FUSE GLASS TUBE	UL/CSA MF51 1A 250V NM
F802A	4857415001	CLIP FUSE	PFC5000-0702
F802B	4857415001	CLIP FUSE	PFC5000-0702
I301	1LA7837---	IC	LA7837
I301A	4857024607	HEAT SINK	AL EX DG
I301B	7174300811	SCREW TAPPTITE	TT2 RND 3X8 MFZN
I501	1LA7674---	IC CHROMA	LA7674
I701	1DFN015M--	IC MICOM	LSC420143B
I702	1CAT24C02P	IC EEPROM	CAT24WC02P
I801	1STR30130-	IC	STR30130
I801A	4857023125	HEAT SINK	AL EX A=57
I801B	7174301011	SCREW TAPPTITE	TT2 RND 3X10 MFZN

LOC.	PART-CODE	PART-NAME	PART-DESC
I801G	4857619500	INSU PLATE	SILICON RUBBER T0.3
IL01	1SR9VP----	IC PREAMP	SR-9VP
L101	58C5580019	COIL CHOKE	TRF-9225 (0.55UH)
L102	58C5580019	COIL CHOKE	TRF-9225 (0.55UH)
L401	58H0000016	COIL H-LINEARITY (20")	L-102 (102UH)
L401	58H0000019	COIL H-LINEARITY (14")	L-178
L402	58C0000026	COIL BEAD	HC-4035
L403	85801065GY	WIRE COPPER	AWG22 1/0.65 TIN COATING
L501	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)
L502	5CPZ150K02	COIL PEAKING	15UH K (AXIAL 3.5MM)
L503	5CPZ150K02	COIL PEAKING	15UH K (AXIAL 3.5MM)
L504	58B49R3S41	COIL PIF	TRF-1066 (STICK)
L505	58B0000S81	COIL PIF	TRF-4524 (STICK)
L506	58RR56K014	COIL RF	TRF-R56
L507	5CPZ560K02	COIL PEAKING	56UH K (AXIAL 3.5MM)
L508	5CPZ150K02	COIL PEAKING	15UH K (AXIAL 3.5MM)
L509	5CPZ220K02	COIL PEAKING	22UH K (AXIAL 3.5MM)
L601	5CPZ150K02	COIL PEAKING	15UH K (AXIAL 3.5MM)
L701	5CPZ101K02	COIL PEAKING	100UH K (AXIAL 3.5MM)
L702	5CPZ220K02	COIL PEAKING	22UH K (AXIAL 3.5MM)
L951	5CPX181J--	COIL PEAKING	180UH J (RADIAL)
M351	4853524600	HOLDER CORD	FR P.P BK
M551	4855526200	DECO SENSOR	PMMA
P004	4850703S11	CONN AS	YH025-03+YST025+USW=200
P101	485923192S	CONN WAFER	YW025-06 (STICK)
P401	4859240020	CONN WAFER	YFW500-05
P402	485923162S	CONN WAFER	YW025-03 (STICK)
P601	485923162S	CONN WAFER	YW025-03 (STICK)
P901	4859242220	CONN WAFER	YFW800-02
PA101	4850706S02	CONN AS	YH025-06+YST025+ULW=400
PA402	4850703S19	CONN AS	YH025-03+YST025+ULW=300
PCW1	4859903610	CORD POWER AS	KJ-10W+BSP3-1/2H=2100
Q101	TKTC3197--	TR	KTC 3197
Q102	TKTC3205Y-	TR	KTC3205Y
Q401	TKTC3207--	TR	KTC3207
Q402	T2SD1554--	TR (14")	2SD 1554
Q402	T2SD1555--	TR (20")	2SD 1555
Q402A	4857024510	HEAT SINK	AL EX
Q402B	7174301011	SCREW TAPPTITE	TT2 RND 3X10 MFZN
Q402D	4856215201	WASHER	SPCC
Q501	TKTC3198Y-	TR	KTC3198Y
Q502	TKTC3198Y-	TR	KTC3198Y
Q503	TKTC3198Y-	TR	KTC3198Y
Q504	TKTC3198Y-	TR	KTC3198Y
Q505	TKTC3205Y-	TR	KTC3205Y

LOC.	PART-CODE	PART-NAME	PART-DESC
Q506	TKTA1270Y-	TR	KTA1270Y
Q507	TKTC3198Y-	TR	KTC3198Y
Q601	TKTC1026Y-	TR	KTC1026-Y
Q602	TKTA940---	TR	KTA940
Q603	TKTC2073--	TR	KTC2073
Q701	TKTA1266Y-	TR	KTA1266Y
Q702	TKTC3198Y-	TR	KTC3198Y
Q703	TKTC3198Y-	TR	KTC3198Y
Q704	TKTC3207--	TR	KTC3207
Q705	TKTC3198Y-	TR	KTC3198Y
Q706	TKTC3198Y-	TR	KTC3198Y
Q707	TKTC3198Y-	TR	KTC3198Y
Q708	TKTC3205Y-	TR	KTC3205Y
Q709	TKTC3198Y-	TR	KTC3198Y
Q710	TKTA1266Y-	TR	KTA1266Y
Q801	TKSA1013Y-	TR	KSA 1013-Y (TAPPING)
Q951	TKTC3198Y-	TR	KTC3198Y
Q952	TKTC3229--	TR	KTC 3229
Q953	TKTC3198Y-	TR	KTC3198Y
Q954	TKTC3229--	TR	KTC 3229
Q955	TKTC3198Y-	TR	KTC3198Y
Q956	TKTC3229--	TR	KTC 3229
R101	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R102	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R103	RD-AZ330J-	R CARBON FILM	1/6 33 OHM J
R104	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R105	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R106	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R107	RS02Z470J-	R M-OXIDE FILM	2W 47 OHM J (TAPPING)
R108	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R109	RS02Y241J-	R M-OXIDE FILM	2W 240 OHM J
R110	RS02Y241J-	R M-OXIDE FILM	2W 240 OHM J
R111	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R112	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R113	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R301	RD-AZ243J-	R CARBON FILM	1/6 24K OHM J
R302	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J
R303	RD-AZ683J-	R CARBON FILM	1/6 68K OHM J
R304	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R305	RF01Z339J-	R FUSIBLE	1W 3.3 OHM J (TAPPING)
R306	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R307	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J
R308	RD-AZ622J-	R CARBON FILM	1/6 6.2K OHM J
R309	RD-AZ563J-	R CARBON FILM	1/6 56K OHM J
R310	RS01Z331J-	R M-OXIDE FILM	1W 330 OHM J (TAPPING)

LOC.	PART-CODE	PART-NAME	PART-DESC
R311	RS01Z209J-	R M-OXIDE FILM	1W 2 OHM J
R312	RD-2Z621J-	R CARBON FILM	1/2 620 OHM J
R313	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J
R314	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R315	RV5426223P	R SEMI FIXED	RH0638C 22K OHM
R316	RV5426472P	R SEMI FIXED	RH0638C 4.7K OHM B
R401	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R402	RF01Z439J-	R FUSIBLE	1W 4.3 OHM J (TAPPING)
R403	RD-2Z472J-	R CARBON FILM	1/2 4.7K OHM J
R404	RS02Z153J-	R M-OXIDE FILM	2W 15K OHM J (TAPPING)
R405	RS02Z153J-	R M-OXIDE FILM	2W 15K OHM J (TAPPING)
R406	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R407	RD-AZ682J-	R CARBON FILM	1/6 6.8K OHM J
R408	RD-AZ433J-	R CARBON FILM	1/6 43K OHM J
R409	RD-4Z270J-	R CARBON FILM	1/4 27 OHM J
R410	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J
R411	RD-AZ333J-	R CARBON FILM	1/6 33K OHM J
R412	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R413	RS02Z183J-	R M-OXIDE FILM	2W 18K OHM J (TAPPING)
R414	RS02Z203J-	R M-OXIDE FILM	2W 20K OHM J (TAPPING)
R415	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R416	RD-2Z154J-	R CARBON FILM (14")	1/2 150K OHM J
R416	RD-2Z124J-	R CARBON FILM (20")	1/2 120K OHM J
R417	RF01Z229J-	R FUSIBLE	1W 2.2 OHM J (TAPPING)
R418	RS01Z272J-	R M-OXIDE FILM	1W 2.7K OHM J (TAPPING)
R419	RS01Z562J-	R M-OXIDE FILM	1W 5.6K OHM J (TAPPING)
R420	RF01Z479J-	R FUSIBLE	1W 4.7 OHM J (TAPPING)
R501	RS02Z820J-	R M-OXIDE FILM	2W 82 OHM J (TAPPING)
R502	RS02Z820J-	R M-OXIDE FILM	2W 82 OHM J (TAPPING)
R503	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R504	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R505	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R506	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R507	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R508	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R509	RD-AZ182J-	R CARBON FILM	1/6 1.8K OHM J
R510	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R511	RD-AZ753J-	R CARBON FILM	1/6 75K OHM J
R512	RD-AZ124J-	R CARBON FILM	1/6 120K OHM J
R513	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R514	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J
R515	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R516	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R517	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R519	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J

LOC.	PART-CODE	PART-NAME	PART-DESC
R520	RD-4Z561J-	R CARBON FILM	1/4 560 OHM J
R521	RD-AZ684J-	R CARBON FILM	1/6 680K OHM J
R522	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R524	RD-AZ561J-	R CARBON FILM	1/6 560 OHM J
R525	RD-AZ274J-	R CARBON FILM	1/6 270K OHM J
R526	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J
R527	RS01Z752J-	R M-OXIDE FILM	1W 7.5K OHM J (TAPPING)
R528	RD-AZ124J-	R CARBON FILM	1/6 120K OHM J
R529	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R530	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R531	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R532	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J
R533	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J
R534	RD-AZ390J-	R CARBON FILM	1/6 39 OHM J
R535	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R536	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R537	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R538	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R539	RD-AZ332J-	R CARBON FILM	1/6 3.3K OHM J
R540	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R541	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R542	RD-AZ511J-	R CARBON FILM	1/6 510 OHM J
R543	RD-AZ821J-	R CARBON FILM	1/6 820 OHM J
R544	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R545	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R546	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R547	RD-AZ683J-	R CARBON FILM	1/6 68K OHM J
R548	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R549	RD-AZ752J-	R CARBON FILM	1/6 7.5K OHM J
R550	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R551	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J
R552	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J
R553	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J
R554	RV5426472P	R SEMI FIXED	RH0638C 4.7K OHM B
R555	RV5426103P	R SEMI FIXED	RH0638C 10K OHM B
R556	RV5426104P	R SEMI FIXED	EVN-DJA A03 100K OHM B
R558	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J
R601	RF01Z121J-	R FUSIBLE	1W 120 OHM J (TAPPING)
R602	RD-AZ133J-	R CARBON FILM	1/6 13K OHM J
R603	RD-4Z244J-	R CARBON FILM	1/4 240K OHM J
R604	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R605	RD-2Z200J-	R CARBON FILM	1/2 20 OHM J
R606	RD-2Z223J-	R CARBON FILM	1/2 22K OHM J
R701	RD-AZ471J-	R CARBON FILM	1/6 470 OHM J
R702	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J

LOC.	PART-CODE	PART-NAME	PART-DESC
R703	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R704	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R705	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R706	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R707	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R708	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J
R709	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R710	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R711	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R712	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R713	RD-AZ153J-	R CARBON FILM	1/6 15K OHM J
R714	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R715	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R716	RD-AZ301J-	R CARBON FILM	1/6 300 OHM J
R717	RD-AZ222J-	R CARBON FILM	1/6 2.2K OHM J
R719	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R720	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R721	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J
R722	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R724	RD-AZ224J-	R CARBON FILM	1/6 220K OHM J
R725	RD-AZ393J-	R CARBON FILM	1/6 39K OHM J
R726	RD-AZ273J-	R CARBON FILM	1/6 27K OHM J
R727	RD-AZ363J-	R CARBON FILM	1/6 36K OHM J
R728	RD-AZ243J-	R CARBON FILM	1/6 24K OHM J
R729	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R730	RD-AZ243J-	R CARBON FILM	1/6 24K OHM J
R731	RD-AZ562J-	R CARBON FILM	1/6 5.6K OHM J
R732	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R733	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R734	RD-AZ433J-	R CARBON FILM	1/6 43K OHM J
R735	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R736	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R737	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J
R738	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R739	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J
R740	RD-AZ272J-	R CARBON FILM	1/6 2.7K OHM J
R742	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R743	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R744	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R745	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R746	RD-AZ473J-	R CARBON FILM	1/6 47K OHM J
R747	RD-AZ821J-	R CARBON FILM	1/6 820 OHM J
R748	RD-4Z105J-	R CARBON FILM	1/4 1M OHM J
R749	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R750	RD-AZ122J-	R CARBON FILM	1/6 1.2K OHM J
R751	RD-AZ392J-	R CARBON FILM	1/6 3.9K OHM J



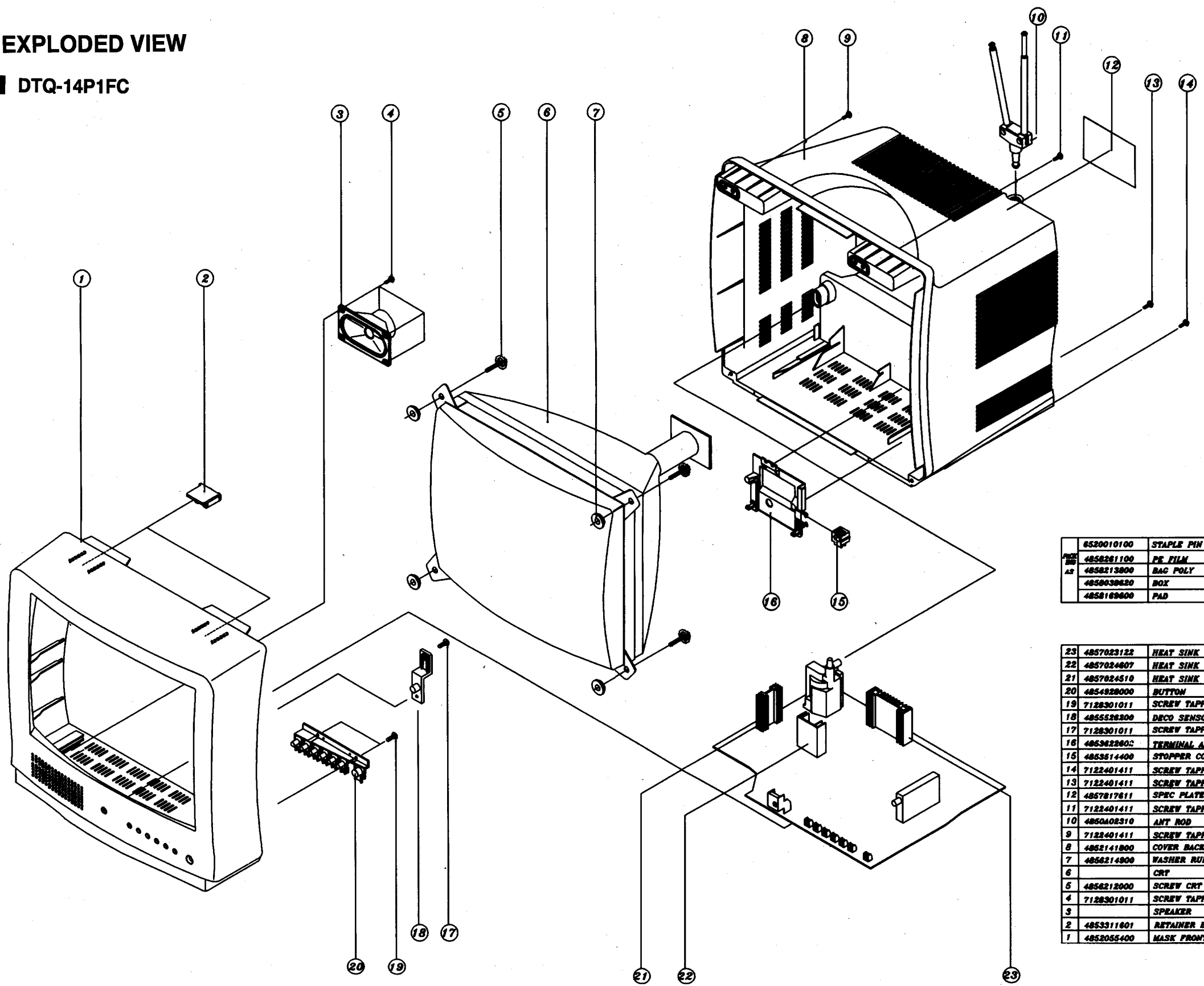
LOC.	PART-CODE	PART-NAME	PART-DESC
R752	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R753	RD-AZ133J-	R CARBON FILM	1/6 13K OHM J
R754	RD-2Z363J-	R CARBON FILM	1/2 36K OHM J
R755	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R757	RD-AZ303J-	R CARBON FILM	1/6 30K OHM J
R758	RD-AZ103J-	R CARBON FILM	1/6 10K OHM J
R759	RX10T102J-	R CEMENT	10W 1K OHM J TRIPOD
R760	RD-2Z241J-	R CARBON FILM	1/2 240 OHM J
R761	RS02Z273J-	R M-OXIDE FILM	2W 27K OHM J (TAPPING)
R762	RS02Z912J-	R M-OXIDE FILM	2W 9.1K OHM J (TAPPING)
R763	RS02Z912J-	R M-OXIDE FILM	2W 9.1K OHM J (TAPPING)
R764	RS02Z912J-	R M-OXIDE FILM	2W 9.1K OHM J (TAPPING)
R765	RS01Z511J-	R M-OXIDE FILM	1W 510 OHM J (TAPPING)
R766	RD-AZ104J-	R CARBON FILM	1/6 100K OHM J
R767	RD-AZ152J-	R CARBON FILM	1/6 1.5K OHM J
R771	RD-AZ133J-	R CARBON FILM	1/6 13K OHM J
R772	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R773	RD-AZ362J-	R CARBON FILM	1/6 3.6K OHM J
R774	RD-AZ223J-	R CARBON FILM	1/6 22K OHM J
R775	RD-AZ123J-	R CARBON FILM	1/6 12K OHM J
R776	RD-AZ102J-	R CARBON FILM	1/6 1K OHM J
R777	RD-AZ134J-	R CARBON FILM	1/6 130K OHM J
R778	RD-AZ154J-	R CARBON FILM	1/6 150K OHM J
R779	RD-AZ472J-	R CARBON FILM	1/6 4.7K OHM J
R780	RD-2Z273J-	R CARBON FILM	1/2 27K OHM J
R782	RD-AZ822J-	R CARBON FILM	1/6 8.2K OHM J
R801	RX10T229J-	R CEMENT	10W 2.2 OHM J TRIPOD
R802	RF01Z109J-	R FUSIBLE	1W 1 OHM J (TAPPING)
R803	RD-2Z224J-	R CARBON FILM	1/2 220K OHM J
R804	RS02Z123J-	R M-OXIDE FILM	2W 12K OHM J (TAPPING)
R805	RS01Z470J-	R M-OXIDE FILM	1W 47 OHM J (TAPPING)
R806	RX25B251JN	R CEMENT (14")	25W 250 OHM J BENCH 4P
R806	RX25B201JN	R CEMENT (20")	25W 200 OHM J BENCH 4P
R807	RF01Z688J-	R FUSIBLE	1W 0.68 OHM J (TAPPING)
R808	RD-AZ243J-	R CARBON FILM	1/6 24K OHM J
R809	RD-AZ203J-	R CARBON FILM	1/6 20K OHM J
R810	RD-2Z103J-	R CARBON FILM	1/2 10K OHM J
R888	RC-2Z225J-	R CARBON COMP	1/2 2.2M OHM J
R901	DEC7ROM140	POSISTOR	ECPAC7ROM140
R951	RD-AZ821J-	R CARBON FILM	1/6 820 OHM J
R952	RD-AZ821J-	R CARBON FILM	1/6 820 OHM J
R953	RD-AZ821J-	R CARBON FILM	1/6 820 OHM J
R954	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R955	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R956	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R957	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R959	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J
R960	RD-AZ101J-	R CARBON FILM	1/6 100 OHM J
R961	RD-AZ331J-	R CARBON FILM	1/6 330 OHM J



LOC.	PART-CODE	PART-NAME	PART-DESC
R962	RD-2Z332J-	R CARBON FILM	1/2 3.3K OHM J
R963	RD-2Z332J-	R CARBON FILM	1/2 3.3K OHM J
R964	RD-2Z332J-	R CARBON FILM	1/2 3.3K OHM J
R965	RS02Z123J-	R M-OXIDE FILM	2W 12K OHM J (TAPPING)
R966	RS02Z123J-	R M-OXIDE FILM	2W 12K OHM J (TAPPING)
R967	RS02Z123J-	R M-OXIDE FILM	2W 12K OHM J (TAPPING)
R971	RV5221502-	R SEMI FIXED	V5K-5X2.5-6Y-PC-RP
R972	RV5221502-	R SEMI FIXED	V5K-5X2.5-6Y-PC-RP
R973	RV5221502-	R SEMI FIXED	V5K-5X2.5-6Y-PC-RP
R974	RV5221201-	R SEMI FIXED	EVN D2A A03 200 OHM B
R975	RV5221201-	R SEMI FIXED	EVN D2A A03 200 OHM B
RLY1	5SC0101329	SW RELAY	SDT-SS-148DM
S101	DSVC271D14	VARISTOR	SVC271D14A
SCT1	4859302030	SOCKET CRT	ISM-03
SF01	5PDSW1003S	FILTER SAW	DSW 1003S
SP01	4858305220	SPEAKER	3W 8 OHM MSF-2D30SB02U
SP01A	7128301011	SCREW TAPPING	T2S WAS 3X10 MFZN
SW01	5S50101008	SW TACT	KPT-1105V 1C-1P
SW02	5S50101008	SW TACT	KPT-1105V 1C-1P
SW03	5S50101008	SW TACT	KPT-1105V 1C-1P
SW04	5S50101008	SW TACT	KPT-1105V 1C-1P
SW05	5S50101008	SW TACT	KPT-1105V 1C-1P
SW06	5S50101008	SW TACT	KPT-1105V 1C-1P
SW07	5S50101008	SW TACT	KPT-1105V 1C-1P
SW201	5S40403035	SW LEVER	JRS-1301
T401	5T0K000017	TRANS DRIVE	TLN-1039
T401J	4857234100	SHIELD PLATE	SPTH-C T0.3
T402	50H0000132	FBT (14")	FSA25002S
T402	50H0000163	FBT (20")	KFS-61251
T601	5T0U000005	TRANS SOUND OUTPUT	TSP-1036
T801	5PTLF104--	FILTER LINE	TLF-104
U001	4859712730	TUNER VARACTOR	VTSH7USZFD1
V01	58D1000046	COIL DY (14")	ODY-M1401
V01	58D1000045	COIL DY (20")	ODY-M2002
V02	48A96R004-	RUBBER WEDGE	HMR 28 SR (:OX54)
V03	4850PM001-	MAGNET CP	NY-225 (MINI NECK)
V04	2TG00025--	TAPE GLASS	W25
V05	2224050033	BOND SILICON	RTV 252
V901	48A96414N1	CRT BARE (14")	A34JLL40X
V901	48A96420N1	CRT BARE (20")	A48JLL40X
V901A	4856013300	SCREW CRT FIXING AS	L=70MM
V901B	4856215402	WASHER RUBBER	CR
V901Z	4856013301	SCREW CRT FIXING AS	L=140MM
W1	WP-1BK2017	WIRE LEAD 1007	AWG22 1/0.65 BK 10-200-10
X401	4850L02410	RESONATOR CERA	CSB503F45 (15.760KHZ)
X501	5XEX3R579C	CRYSTAL QUARTZ	HC-49U 3.579545M 20PPM TA
X601	5PCDA45E42	FILTER CERA	CDA4.5ME42
X701	5XE8R0000E	CRYSTAL QUARTZ	HC-49/U 8.000000MHZ 30PPM
Z501	5PXPS45MB-	FILTER CERA	TPS-4.5MB TRAP (TAPPING)
Z601	5PXF4SH4R5M	FILTER CERA	SFSH4.5MCB-TF21 TAPING
L901	58G0000078	COIL DEGAUSSING (14")	DC-1400
L901	58G0000079	COIL DEGAUSSING (20")	DC-2000
L902	48519A4710	CRT GROUND AS (14")	1401S-1015-1P
L902	48519A5110	CRT GROUND AS (20")	2001S-1015-1P

# EXPLODED VIEW

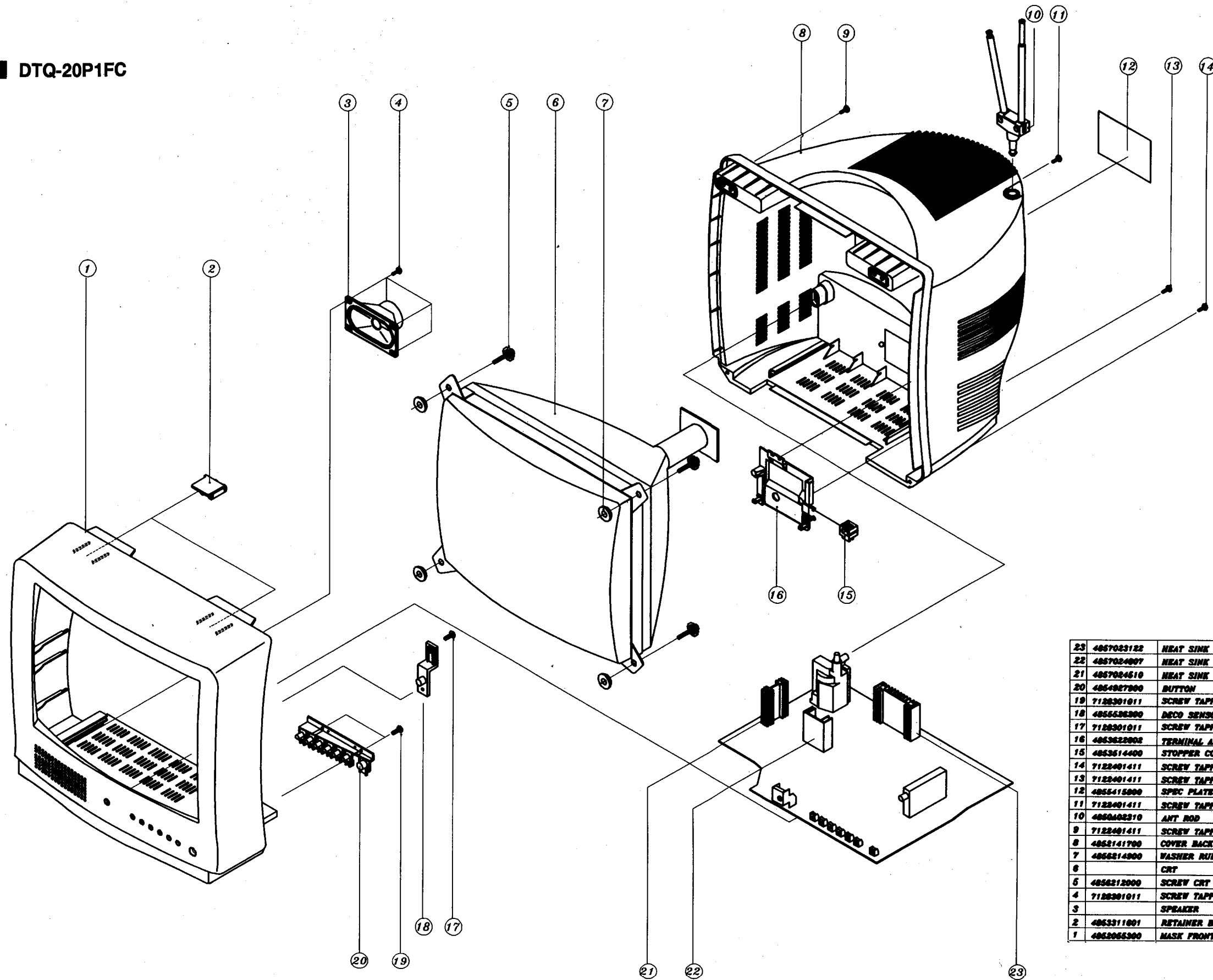
DTQ-14P1FC



6520010100	STAPLE PIN	1/2	18M/M J D O
485221100	PE FILM	1	TO.02X1100X1000 C/TV18
485213800	BAG POLY	1	PE FILM TO.06X250X350
4850038620	BOX	1	DW-2
485169600	PAD	1	EPS

23	4857023122	HEAT SINK	1	AL EX A-67
22	4857024607	HEAT SINK	1	AL EX
21	4857024510	HEAT SINK	1	AL EX
20	4854928000	BUTTON	1	HC ABS BK
19	7122301011	SCREW TAPPING	2	T2S WAS 3*10 MPZN
18	4855528200	DECO SENSOR	1	PC
17	7122301011	SCREW TAPPING	1	T2S WAS 3*10 MPZN
16	4853422602	TERMINAL ANT	1	FR HIPS BK
15	4853514400	STOPPER CORD	1	FR P.P BK
14	7122401411	SCREW TAPPING	2	T2S TRS 4*14 MPZN
13	7122401411	SCREW TAPPING	2	T2S TRS 4*14 MPZN
12	4857817611	SPEC PLATE	1	ISOART P/E FILM(C/TV)
11	7122401411	SCREW TAPPING	1	T2S TRS 4*14 MPZN
10	4850402310	ANT ROD	1	S3BW276D(L-400mm)
9	7122401411	SCREW TAPPING	2	T2S TRS 4*14 MPZN
8	4852141800	COVER BACK	1	FR HIPS BK
7	4856214900	WASHER RUBBER	4	TMR-CA/NF-01 BK
6		CRT	1	14"
5	4856212000	SCREW CRT FIX	4	SVRM+SK-5 (L-30)
4	7122301011	SCREW TAPPING	2	T2S WAS 3*10 MPZN
3		SPEAKER	1	
2	4853311801	RETAINER BACK	2	HIPS BK
1	4852055400	MASK FRONT	1	FR HIPS BK

DTQ-20P1FC



23	4857023122	HEAT SINK	1	AL EX A-67	
22	4857024897	HEAT SINK	1	AL EX	
21	4857024510	HEAT SINK	1	AL EX	
20	4854827890	BUTTON	1	HC ABS BK	
19	7128301011	SCREW TAPPING	2	TES WAS 3*10 MFEN	
18	4855535300	DECO SENSOR	1	FC	
17	7128301011	SCREW TAPPING	1	TES WAS 3*10 MFEN	
16	4853632903	TERMINAL ANT	1	FR NIPS BK	
15	4853514400	STOPPER CORD	1	FR P.P BK	
14	7122401411	SCREW TAPPING	2	TES TRS 4*14 MFEN	
13	7122401411	SCREW TAPPING	2	TES TRS 4*14 MFEN	
12	4855415900	SPEC PLATE	1	ISOART P/E FILM(C/TV)	
11	7122401411	SCREW TAPPING	1	TES TRS 4*14 MFEN	
10	4850402310	ANT ROD	1	SSBVEY08(L=400mm)	
9	7122401411	SCREW TAPPING	2	TES TRS 4*14 MFEN	
8	4852141700	COVER BACK	1	FR NIPS BK	
7	485214900	WASHER RUBBER	4	THR-CA/NF-01 BK	
6		CRT	1	24"	
5	485212000	SCREW CRT FIX	4	SVRM+SK-6 (L=30)	
4	7128301011	SCREW TAPPING	2	TES WAS 3*10 MFEN	
3		SPEAKER	1		
2	4853311801	RETAINER BACK	2	NIPS BK	
1	4852055300	MASK FRONT	1	FR NIPS BK	

# SCHEMATIC DIAGRAM

## 1. MAIN & CRT BOARD

**IMPORTANT SAFETY NOTES**

WHEN SERVICING THIS CHASSIS, THE FOLLOWING PRECAUTIONS SHOULD BE OBSERVED:

1. THE ORIGINAL DESIGNER HAS DESIGNED THIS CHASSIS TO BE SERVICED BY A QUALIFIED SERVICE PERSONNEL. ALL COMPONENTS SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN THE ORIGINAL CIRCUIT.

2. SPECIAL COMPONENTS ARE USED TO PREVENT SHOCK AND FIRE HAZARDS. THESE SPECIAL COMPONENTS ARE IDENTIFIED ON THE SCHEMATIC AND PARTS LIST FOR EASY IDENTIFICATION.

3. THE CIRCUIT DIAGRAM MAY OCCASIONALLY DIFFER FROM THE ACTUAL CIRCUIT DUE TO THE REVISIONS OF THE LATEST SAFETY AND PERFORMANCE CHANGES INTO THE SET IS NOT RELATED INTO THE NEW SERVICE LITERATURE IS PRINTED.

SCHEMATIC  
DIAGRAM  
CN-150

### 1. CAUTION

THE COMPONENT MARKED WITH \* ON THE SCHEMATIC DIAGRAM WHICH HAVE SPECIAL CHARACTERISTICS. IMPORTANT FOR SAFETY AND SHOULD BE REPLACED ONLY WITH TYPES IDENTICAL TO THOSE IN ORIGINAL CIRCUIT OR SPECIFIED IN THE PARTS LIST.

### WARNING:

BEFORE SERVICING THIS CHASSIS, READ THE "SAFETY PRECAUTIONS" AND "PRODUCT SAFETY NOTICE" IN THE SERVICE MANUAL.

### CAUTION TO THE SERVICE TECHNICIANS:

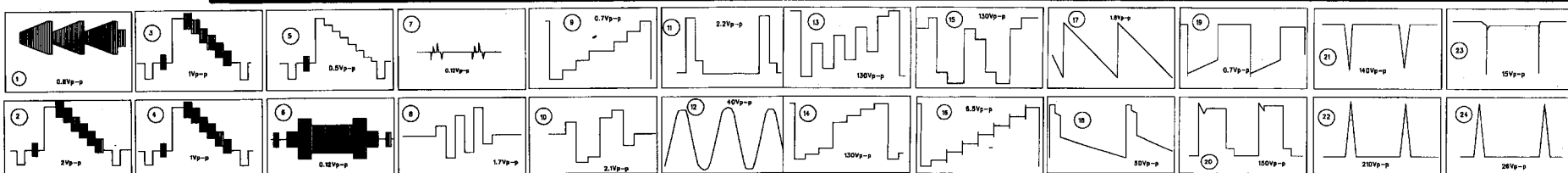
BEFORE RETURNING THE RECEIVER TO THE CUSTOMER, APPROPRIATE LEAKAGE CURRENT OR RESISTANCE MEASUREMENTS SHOULD BE CONDUCTED TO DETERMINE THAT EXPOSED PARTS ARE PROPERLY INSULATED FROM THE SUPPLY CIRCUIT.

### NOTES:

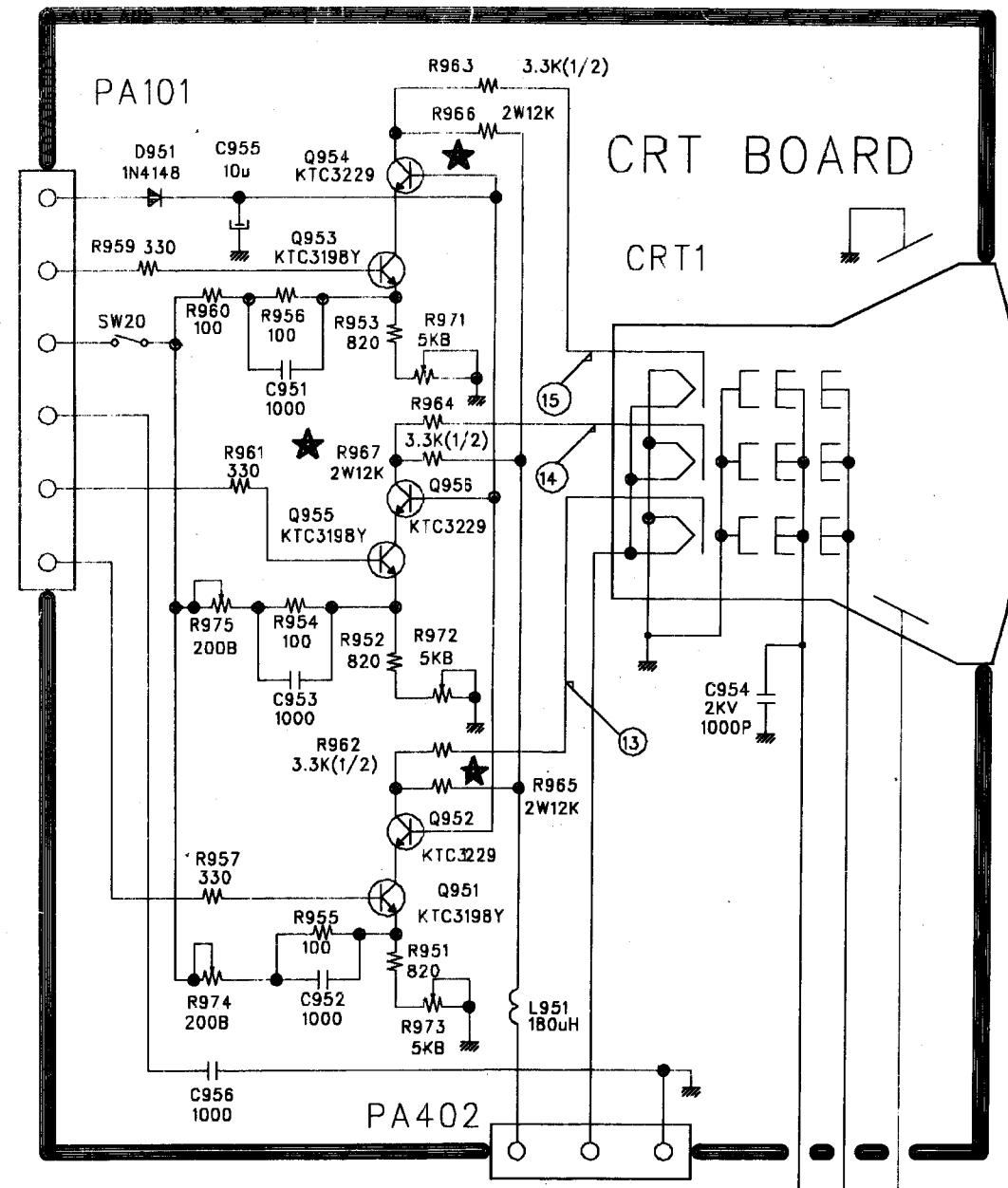
1. RESISTANCE IS SHOWN IN OHMS. K=1,000. M=1,000,000.
2. UNLESS OTHERWISE NOTED IN THE SCHEMATIC, ALL CAPACITOR VALUES LESS THAN 1 ARE EXPRESSED IN PF AND THE VALUES MORE THAN 1 IN  $\mu$ F.
3. VOLTAGES READ WITH A "X1" RANGE ARE MEASURED FROM POWER SUPPLY TO GROUND UNLESS SHOWN A COLOR BAR SIGNAL WITH ALL CONTROLS AT NORMAL LINE VOLTAGE 120 VOLTS AC. VOLTAGE READINGS SHOWN ARE NOMINAL VALUES AND MAY VARY  $\pm 10\%$  EXCEPT IN \*.
4. IN CASE OF 10 "RECEIVER" COMPONENTS MARKED WITH \* SHOULD BE USED ONLY.
5. THE CIRCUIT DIAGRAM IS A STANDARD ONE. CIRCUITS PROVIDED MAY BE SUBJECT TO CHANGE FOR PRODUCT IMPROVEMENT WITHOUT PRIOR NOTICE.

1900  
COIL  
DEGAUSSING

PCW1  
AC120V 60HZ  
(POWER CORD)



## 2. CRT BORAD



### 3. TRANSMITTER

